THE ROLES OF AGROINDUSTRY IN THE IMPROVEMENT OF REGIONAL ECONOMY AND INCOME DISTRIBUTION OF SOUTH KALIMANTAN PROVINCE, INDONESIA

A thesis submitted in fulfilment of the requirements for the degree of
Doctor of Philosophy

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Abstract

Although the contribution of agriculture to GDP and employment is inevitably decreasing along with economic growth, the importance of agriculture is increasing. Agriculture is no longer considered as a passive sector, from which resources are squeezed and extracted to support other sectors. Instead, it is believed that agriculture has significant roles in accumulating and self-sustaining growth. It has significant effects on industrialization and economic growth.

One possible strategy to improve agricultural sectors as well as the overall economic growth is by developing agroindustry, a rural based industry with business characters, which processes agricultural products. Agroindustry is strategic and has wider effects on family welfare and rural community. It can enhance growth and equity improvement at once. Agroindustry serves as a bridge for economic transformation, generate employment, support rural area, prevent urbanization, improve income for the poor, ensure food security, and help small-scale farmers to survive.

This research is designed to verify previous findings regarding the roles of agroindustry with empirical data using a social accounting matrix (SAM) framework. The South Kalimantan Province of Indonesia has been chosen as the focus of study in this research.

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The results reveal that agroindustry suitable for maintaining economic growth, and also it is suitable for helping poor farmer to improve their welfare. Agroindustry has the highest value-added share in input and the highest value-added multiplier compared to other sectors in the economy. Agroindustry is a productive sector with high labor productivity and total factor productivity. Its linkage values show that despite the little linkages in input provision for other sector, agroindustry has higher linkages for value added generation and income improvement. It has also a good shape in export-import structure with the highest net export and the highest ratio of export-import. The multiplier analysis also reveals that the accumulation direct and indirect multiplier of agroindustry helps the poor households to earn more additional income through multiplier process. These facts confirm that agroindustry is suitable for income equality improvement and growth promotion.

Research Declaration

This thesis contains no material which has been accepted for award of any degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text.

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LUTHFI

05 December 2002

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1 Introduction

1.1 Background

The role of inequality in economic development has a long and controversial history. Various studies offer possible strategies on how to address this possible trade off between growth and equity. The World Bank encourages a middle policy approaching the controversy by formulating a way in which income distribution gradually could be improved through the redistribution of gains from economic growth (Gillis, et al. 1992).

Agricultural development is one alternative answer for this trade off. Traditionally, agriculture has been regarded as subordinate to the industrial sectors in the process of industrialization (Fei and Ranis 1961, Hirschman 1958, Johnston and Mellor 1961, Jorgenson 1961, Lewis 1954, Rosentein-Rodan 1943, and Scitovsky 1954). This view however, ignores the full growth contribution of agriculture. In fact, besides the traditional role, there are some economic contributions of agriculture as the non-traditional agriculture roles (Stringer 2001). These include: contribution to agribusiness activities, contribution to the social welfare infrastructure, contribution in the form of its rapid productivity growth, contribution to poverty alleviation, contribution to labour productivity through education, and contributions to health and food safety.

Agriculture is important for industrialization and economic growth in a number of countries (Lewis 2000, Ruttan and Hayami 1984). It is crucial for export-earnings, employment creation, and food security (Alexandratos 1995, Anwar 1991, Babu 2000, Bahri, et al. 1998, Hayami and Kikuchi 1987, and Paukert, et al. 1981). For low-income countries, where food is a wage good, agricultural development is important to keep food prices affordable as the inflationary impact of high food prices could affect the economy severely (Johnston and Mellor 1961). Improving agricultural productivity can simultaneously help a country to raise the living standards of their farmers, generate domestic markets for industrial products, and improve their term of trade (Lewis 2000). Agriculture can also function as an economic buffer for regions experiencing difficult periods.

Accentuation of agricultural development and utilising its comparative advantages can be one relevant alternative for the purpose of income redistribution (Lewis 2000). However, a careful assertion is needed in agricultural development policy, because if it is not formulated properly, the result could not reach the target as expected.

Indonesia has had some experience in this case. Regarding achievements in agriculture, Indonesian development policies have been impressive, successfully changing from a large importer to a self-sufficient country. However, farmers seem to be the neglected actors. Though they play the prime roles in agriculture, they do not get relative improvement in

their incomes. Rural labourers, the landless and small farmers still dominant poverty and rural areas receive less attention in regional development programs.

Based on that experience and to better anticipate the changing economic situation both regional and global, Indonesia's agricultural policy has adapted a new paradigm. The new paradigm seeks to induce technical and institutional changes, to make agriculture an efficient and leading sector of the national economy, as well as to create more productive employment in rural areas. It will have linkages with other related sub-systems including infrastructure, processing, marketing, and distribution. The purpose of agricultural development has changed from an increase of production into the increase of farmer welfare. The manifestation of this new paradigm is to support agribusiness, a form of farming with a business character. One sub-system of agribusiness is agroindustry.

D'Souza and Gebremedhin (1998) list some previous works portraying that agroindustry has a wider effect on the welfare of the family and rural community. Reardon and Barrett (2000) argue that the necessity of agroindustrialisation is nearly undeniable, although the proper type of agroindustrialisation needs to be considered mindfully. Other studies have found that agroindustrial development is very important in order to accelerate regional economic development while improving income distribution as well through various important roles (Anwar 1991,

Giovannucci 2001, Hayami and Kikuchi 1987, Nasution, et al. 1991, and Schejtman 1994).

1.2   Research Purposes

This research is mainly purposed to investigate the roles of agroindustry in economic growth and income distribution with special reference to the South Kalimantan Province of Indonesia using the Social Accounting Matrix framework and its multiplier analysis. The main purposes can be categorised in detail as following.

1. To construct a Social Accounting Matrix (SAM) of the South Kalimantan Province and calculate a mixed multiplier matrix based on the SAM.

2. To develop a model using the mixed multiplier matrix to be used for simulations. The simulations are purposed to investigate the effects of various possible alternative development strategies of the South Kalimantan Province on economic growth and improvement of income equality.

3. To study the roles of agroindustries in the economic growth of the South Kalimantan Province. For this purpose, the investigation is focused on:

   3.1. Agroindustries' roles in value added generation

   3.2. The linkages of agroindustries

   3.3. Agroindustries' tradability in terms of export-import structure

4. To study the roles of agroindustries in income equality improvement in the South Kalimantan Province. For this purpose, the investigation is focused on:

   4.1. Agroindustries' roles in income generation

   4.2. Agroindustries' roles in income distribution

5. To study some possible alternative strategies suitable for the South Kalimantan Province to enhance economic growth as well as to improve income equality. For this purpose, the investigation is carried on by:

   5.1. Defining some possible alternative strategies enabled by decentralisation rules in the South Kalimantan Province.

   5.2. Running simulations to investigate the effects of the strategies on economic growth and income distribution in the South Kalimantan Province.

   5.3. Investigating constraints faced in agroindustrial development

   5.4. Discussing appropriate roles of the government of the South Kalimantan Province to support agroindustrial development.

1.3 Outline of the Thesis

The research results together with the preceding backgrounds, literature reviews, and any other important and relevant documentations of the research are organised into nine chapters, including this introduction and a summary at the end as a closure. The chapters are ordered as follows.

In Chapter 2, the positions of agriculture and agroindustry in economic growth and disparity problems are elaborated. Previous literature on the trade-off between economic growth and disparity problems is highlighted. Then the focus is given to the importance of agricultural roles in solving disparity problems. Agroindustry is an activity that is suitable for the further development of agriculture. Its roles in economic development and income distribution improvement are highlighted as well.

Chapter 3 is devoted to the discussion of economic growth and inequality problems in Indonesia. Despite some remarkable results of the development process in Indonesia, the problems of disparity obviously need particular attention. This chapter discusses the policies contributing to the successful economic development in Indonesia as one of the East Asian miracle economies. It also highlights the effects of development and their implications on income distribution. Then, the opportunity for agriculture to achieve improved equality in the development process while still maintaining economic growth is elaborated. This section particularly focuses on the economic crisis and its effects on the Indonesian economy

as well the opportunities available for agriculture. Indonesia's new paradigm of agricultural development and the strategic position of agroindustry in the new paradigm are also discussed. South Kalimantan Province as the case of study is briefly described in one section.

As the analysis is based on the Social Accounting Matrix (SAM), Chapter 4 is dedicated to the theoretical framework of SAM. First some methods that have been used in analysing the phenomena of agroindustries and agroindustrialisation are reviewed. This chapter then exposes and elaborates on the utilisation of the SAM framework either as a database or as a model of analysis. Then the structure and use of a SAM is elaborated, followed by a discussion on some SAM based analyses. Data and methods used in the process of developing the SAM of the South Kalimantan Province is also discussed in this chapter.

The description of the South Kalimantan Province as the case study in this research is provided in Chapter 5. The description is made using the major accounts of the SAM that is specially constructed for the research. These accounts are factors, sectors, institutions and exogenous accounts.

Chapter 6 discuss the results of analysis using SAM and its mixed multiplier. The roles of agroindustry in South Kalimantan's economic development process are investigated. This investigation includes the roles of agroindustry in value-added generation, its linkages and its

tradability in terms of export-import structure. The output, value-added and productivity are discussed first and then the linkages of agroindustry, both backward and forward. Agroindustry's tradability is elaborated, revealing the potential of agroindustry in export and import.

The Social Accounting Matrix (SAM) model can capture the circular flow of income and its distribution in an economy. In a SAM model, income is generated by factors from activities in various sectors of the economy, and some is received from exogenous accounts, which in this case is the outer regions account. The next chapter (Chapter 7) discusses the roles of agroindustry in income equality improvement. First, it discusses how factorial income is generated in the South Kalimantan Province, and how agroindustry plays its roles in the process. Then to study how income is distributed into different households, and how the distribution process affects the gaps between households. Households are grouped into three categories: poor, medium and rich. Next, based on the categories, the distribution of income is discussed, particularly concerning agroindustry's position in income circular flows.

Chapter 8 discusses the alternative development strategy that could be considered in the economic development of the South Kalimantan, in order to enhance growth and equity. The choice of strategy applied in economic development will determine the effects of the development process on income equality and growth. First, the indicators for the

improvement of the regional economy and income distribution are discussed. This section discusses criteria that can be used in the measurement of improvement either in growth or in income equality. This section also describes the initial condition of South Kalimantan Province's economy as a benchmark, to compare the results of simulations using various scenarios. Next, some possible strategies for economic development in the South Kalimantan Province are defined. These then are translated into scenarios of exogenous injection into a particular sector in the economy, which are applicable for the mixed multiplier model. This is followed by discussions of the simulation results. The results of every scenario will be compared to the benchmark to understand how they affect the economy, particularly in terms of income distribution and economic growth. The constraints that might be faced in agroindustrial development are discussed next, together with some possible strategies as to how they may be addressed followed by the supporting role of the government that is required to support agroindustrial development.

2 How Agriculture and Agroindustry Contribute to Economic Growth and Income Distribution

2.1 Introduction

Although the relative contribution of agriculture to GDP and employment decrease with economic growth, agriculture remains important to food security, exports, jobs, regional growth and income distribution. Agriculture's shares in national output and employment start at high levels in developing countries. As an economy develops, agriculture's share in GDP and employment fall due to the slow rise in the demand for food compared with other goods and services. In addition, rapid development of new technologies for agriculture lead to expanding food supplies per hectare and per worker. A third less-commonly recognized phenomenon contributing to agriculture's relative decline, is the rapid growth in modernizing economies in the use of intermediate inputs purchased from other sectors (Anderson 2000).

This decline in agriculture's GDP share results partly because post-farm gate activities (such as taking produce to market) becomes commercialised and taken over by specialists in the service sector and partly because producers substitute chemicals and machines for labour. Producers receive a lower price and in return their households spend less time marketing. As a result, value added by the farm household's own labour, land and capital, as a share of the gross value of agricultural

output, falls over time as purchased intermediate inputs becomes more important. This increasing use of purchased intermediate inputs and off-farm services by farmers adds to the relative decline of the producing agricultural sector *per se* in overall GDP and employment (Timmer 1992).

Income distribution is determined, in part during economic development and the process of structural transformation. In a market-oriented economy, the structural adjustment process is necessary for accumulating and self-sustaining growth (Johnston and Mellor 1961). Agricultural development can enable farmers to benefit from economic growth, but if the process is distorted, economic growth may still occurs, but income distribution could worsen (Anderson 1987, Mellor 1984). This situation is caused by the fact that only a very little part of population that benefits from the growth.

Agroindustry occupies a strategic position in agricultural development and in economic development. Agroindustrialisation is the process of agroindustrial development. Agroindustrialisation affects farm numbers and size, control and ownership, and the input and output market. It also has a wide-ranging impact on the welfare of farm families and the rural community (D'Souza and Gebremedhin 1998).

The next section (Section 2.2) elaborates on the issues related to the trade-off between economic growth and income inequality. This is

followed by a section that explores the importance of agricultural roles in solving the problems of income inequality (Section 2.3). Section (2.4) discusses the roles of agroindustry and the importance of the process of agroindustrialisation process in economic development and its contribution to income equality improvement.

2.2 Economic Growth and Income Inequality

The concern over the relationship between economic development and income distribution is an old one. Early classical economists including David Ricardo and Karl Marx, made income distribution a central part of their works (Atkinson 1997, Ferreira 1999). However, along with the development of economic thought, there was a period where distribution became a peripheral topic. Ferreira (1999) documents how economists who completed their studies during the 1970-1980s, rarely focused on income distribution as a part of their central studies. Instead they viewed distribution and inequality problems as consequences of development.

More recently, however awareness has increased greatly about how income inequality may affect people's lives. For example, wide media distribution of information contained in household surveys has increased social and political pressure on policy makers. The World Bank (2002) argues that this renewed interest is due to three factors. Firstly, recent empirical work examining inequality and growth linkages contradict

previous results. Secondly, there is a need to re-examine welfare redistribution policy due to the fact that poverty reduction is slowing in so many developing countries. Thirdly, recent empirical studies also examine the impact of inequality on fundamental, human growth related aspects, including health.

In general, there are three mainstream theories on growth and income distribution. The first argues that growth affects distribution. Lewis (1954) implies that growth affects distribution, as growth is the process of labour movement from unproductive sectors to the more productive sectors with the unlimited supplies of labour model. Kuznets (1955) developed his now famous theory of the inverted-U curve. Inequality would increase in the beginning and then at a certain point would decrease. The underlying phenomenon is resource transfers. Ravalion and Chen (1997) found that growth and inequality have a strong negative correlation, thus growth reduces inequality.

The second theory argues that distribution is the cause, and growth is the effect. Some believe that distribution (in terms of inequality) has negative effects (Alesina and Rodrik 1994, Birdsall and Londono 1997, Persson and Tabellini 1994). On the other hand, (Forbes 2000) found a positive and significant relation between initial inequality and growth.

The third theory argues that there is no systematic, causal relationship between growth and distribution. Deininger and Squire (1996, 1998) are prominent among the researchers in this school of thought. Based on a wide database across countries and over time, containing 682 high quality observations of Gini coefficient and quintile shares, and tested on a country by country basis, they concluded that there is not enough evidence to support the inverted-U relationship of income and equality.

Kuznets' theory of the inverted-U is the most popular theory among the three approaches. This idea is similar to the idea of backwash and spread or trickle down effects (Myrdall 1953, Sukirno 1985, and Todaro 1985). The backwash effect is when undeveloped regions contribute to those areas where development is concentrated. The already developing areas are enriched further by the contributions of the less developed regions. The spread or trickle down effect is when the benefits are redistributed from central regions to the peripheral regions in a number of forms including growing demand for peripheral products, employment, and direct transfers.

In the beginning of the development process, the backwash effect is more dominant. Resources including human resources are pulled to a certain region in which the economy grows faster. Therefore, income generation is greater than in other areas. In this developmental stage, income distribution tends to worsen, because only a small proportion of people

and regions within the country benefit. Consequently, income disparity arises, both between various levels of society as well as between regions within the country. However, it is widely believed that at a certain point of the development process, the spread effect becomes more dominant and consequently the income disparity is reduced (Kuznets 1966 and Myrdall 1953).

2.3 The Importance of Agricultural Sectors in Addressing Inequality

Examining the roles of agriculture in development is important to understanding the roles the agricultural sector can play in addressing income inequality. According to Lewis (2000), farm income is the central focus in the growth and income distribution relationship. This is especially important for less developed countries, where the majority of the labour force is employed in agriculture and where the majority of the poor are rural farm workers.

Even before Johnston and Mellor (1961) identified what are today considered the fundamental economic contributions of agriculture to development, some economists focused on how agriculture could best contribute to overall growth and modernization. Many of these earlier analysts (Fei and Ranis 1961, Hirschman 1958, Jorgenson 1961, Lewis 1954, Rosentein-Rodan 1943, and Scitovsky 1954) pointed to agriculture for its abundance of resources and its ability to transfer surpluses to the

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more important industrial sector. By serving as a 'handmaiden' to the industrial sector, agriculture's primary role in the transformation of a developing economy was seen as subordinate in the central strategy of accelerating the pace of industrialization.

As Vogel (1994) notes, Hirschman singled out agriculture for its failure to exhibit the strong forward and backward interindustry linkages needed for development. Hirschman (1958) argued that, '...agriculture certainly stands convicted on the count of its lack of direct stimulus to the setting up of new activities through linkage effects: the superiority of manufacturing is crushing'.

Over time, a traditional approach to development emerged that concentrated on agriculture's important market-mediated linkages. Several core economic roles for agriculture formed this traditional approach: (1) provide labour for an urbanized industrial work force; (2) produce food for expanding populations with higher incomes; (3) supply savings for industrial investments; (4) enlarge markets for industrial output; (5) earn export earnings to pay for imported capital goods; and (6) produce primary materials for agro processing industries (Delgado, et al. 1994, Johnston and Mellor 1961, and Timmer 1992).

A number of development economists attempted to point out that while agriculture's share fell relative to industry and services, it nevertheless

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grew in absolute terms, evolving increasingly complex linkages to the non-agricultural sectors. This group of economists (Adelman 1984, de-Janvry 1984, Kalecki 1971, Kuznets 1968, Melor 1976, Ranis 1984, Singer 1979, and Vogel 1994) expanded the core roles of agriculture to development, highlighting the interdependence between agricultural and industrial development and the potential for agriculture to stimulate industrialization. They argue that agriculture's productive and institutional links with the rest of the economy produce demand incentives (rural household consumer demand) and supply incentives (agricultural goods without rising prices) promoting modernization.

This broader approach to the economic roles of agriculture suggested that the one-way path leading resources out of the rural communities ignored the full growth potential of their agricultural sectors. A two-way path was needed. Resources still must move towards industry and urban centres, but with attention focused on the capital, technological, human resource and income needs of agriculture. This required policymakers to change strategies. Traditional macroeconomic policies that inhibited rural sector growth through direct and indirect taxation of food producers, traders and exporters would need to give way to more a non-discriminatory policy environment for agriculture (Krueger et al 1991, Bautista and Valdés 1993), investments in producing technological innovations (Bautista and Valdes 1993, Hayami and Ruttan 1971, Oram 1995, and Pinstrup-

Anderson 1994), and public investments in rural incomes generating social and physical infrastructure (Adelman 1984 and Vogel 1994).

Stringer (2001) proposes that there are at least six economic contributions of agriculture as the non-traditional agriculture roles. These include agriculture contributions to agribusiness, as social welfare infrastructure, through growth rapid productivity, to poverty alleviation, to the process of learning and education, and to safe and healthy food.

From the broad roles of agriculture, several roles make this sector suitable to promote income equality while enhancing growth. Agriculture can help smoothly bridge economic transformation by generating income for farmers, creating multiplier effects in rural areas, fostering rural development, and reducing regional disparity.

A common feature of economic development is that at the beginning of the development process, the agricultural sector is a significant contributor to growth. As the economy matures, the relative importance of agriculture declines (Anderson and Pangestu 1995, Antle 1999, Johnson 1991, and Rostow 1960). Indonesian economic development has followed this path. Indonesia's share of agriculture in GDP and employment has declined gradually, whereas manufacturing industry's share has increased (Anderson and Pangestu 1995, Hill 1996, Rachbini 1999, and Rinakit 1999).

However, Indonesia has experienced some distortions during this structural transformation process. Despite some impressive success in income growth, poverty reduction and food security, the problem of income disparity between people and between regions in Indonesia has continued to grow. Economic transformation from agriculture to industry obviously does not occur smoothly. During periods of economic downturn or recessions many recent migrants from rural areas to city areas are pushed back to the rural area, searching for work in the agricultural sectors if the economic transformation is not able to utilise resources optimally or creates a large gap between the poor and the rich (Nasution, et al. 1991). This is caused by the fact that agricultural sectors are pushed to absorb some more labour even though their 'marginal productivity of labour' has been very low. Furthermore, the import substitution policy that has been applied dominantly along the process of development in Indonesia (Kartasasmita 1985, and Rubison and Hadiz 1993) has also had some effect in the structural transformation process. This policy hinders agriculture's growth by reducing the relative prices of agricultural products and decreasing the price incentives for farmers. Therefore, this reduces agricultural output level, as farmers become reluctant to increase outputs.

This situation implies that agricultural development can provide a bridge to hold structural transformation taking place smoothly. By creating more employment in agricultural sectors, such as through processing and

marketing activities, the abundant labour of agricultural sectors can be utilised more productively and their marginal productivity may increase. This in turn will help to reduce the number of people rejected in industrial sectors. Agricultural sectors' improvement should be fostered as many people rely on these sectors and the majority of them are poor. Otherwise, the disparity problem could grow and become a more dangerous problem.

In Indonesia, the majority of the labour force works in agriculture. Overall, agriculture comprises about 43 percent of the total labour force, but the sector is even more dominant in the outer islands. Among the 26 provinces of Indonesia, only 8 provinces have less than 50 percent of the percentage of the labour force working in agriculture (See Table 2.1)

Many policymakers have argued that the way in which agricultural policy is used and implemented is essential to creating a more egalitarian income distribution that can lead to higher employment in developing countries. By improving agriculture, farm family welfare increases; and employment opportunities for non-farm rural people increase as farm families expand their spending on locally produced non-farm products.

Table 2.1   Percentage of Labour Force by Provinces and Sectors in Indonesia, 1995

Province	Agriculture	Mining	Industry	Electricity, Gas and Water	Construction	Others
Irian Jaya	74.60	0.47	2.41	0.13	1.87	20.51
NTT	73.11	0.49	9.36	0.13	1.97	14.94
Lampung	69.14	0.29	5.73	0.12	3.16	21.56
Kalbar	67.85	1.52	5.38	0.22	2.68	22.35
Bengkulu	64.72	0.18	3.73	0.13	3.95	27.32
Kalteng	64.06	1.31	6.11	0.37	2.48	26.02
Jambi	62.12	0.84	5.32	0.16	3.18	28.38
Sumsel	59.84	1.94	5.24	0.37	4.06	28.56
Maluku	59.58	0.51	4.15	0.25	2.83	32.80
Dista Aceh	58.90	0.57	5.63	0.17	3.09	31.64
Sulteng	57.51	0.38	5.70	0.17	3.74	32.51
Sultra	57.34	1.19	6.86	0.02	3.51	30.99
Sumut	54.48	0.42	6.89	0.32	3.14	34.74
Sulsel	53.35	0.37	6.79	0.17	2.49	36.83
Riau	52.73	2.37	6.78	0.31	4.08	33.73
Sulut	51.15	0.85	6.99	0.31	5.07	35.64
Sumbar	50.92	0.59	6.72	0.35	3.68	37.73
NTB	50.37	2.04	11.83	0.08	4.39	31.29
Kalsel	45.94	0.70	11.79	0.15	3.55	37.87
Jatim	42.52	0.77	15.09	0.25	4.50	36.86
Jateng	40.35	0.60	15.99	0.18	5.49	37.40
Bali	39.52	0.90	14.67	0.30	6.94	37.67
Kaltim	37.58	4.10	10.75	0.18	6.83	40.57
Yogyakarta	36.01	0.91	14.22	0.20	6.44	42.22
Jabar	29.08	0.76	17.90	0.37	6.47	45.42
DKI Jakarta	0.83	0.36	17.74	0.88	5.37	74.82
INDONESIA	43.86	0.81	12.68	3.15	4.71	37.67

Source: Counted Based on Bappenas, 26 July 2000
http://www.bappenas.go.id/html/inggris/deputi-5/3/3_3/3_3_12.html

In turn, agricultural development raises the purchasing power of non-farm rural people, allowing them to meet additional demands for products and services. New businesses are created to meet these demands.   The

development of agriculture helps to improve the marginal productivity of agricultural sectors, increases labour income, and improves income distribution. Finally, fostering rural development reduces urban-rural disparity through its multiplier effects.

2.4 Agroindustry, Economic Development and Income Distribution

The many economic contributions of agroindustries are often ignored by governments and policymakers even though a large and increasing part of economic growth during the process of development can be attributed to those activities that support the production, marketing, and retailing of food, textiles, clothing, shoes, tobacco, beverages, and related goods for both domestic consumers and exports. Over time, primary agriculture gives up the processing, storing, merchandising, transporting, and financing practices, giving way to a more complex, specialised and integrated process. A long, circular chain evolves. Input providers, farm suppliers, assemblers, processors, wholesalers, brokers, importers, exporters, retailers, merchants, distributors, and consumers join the food and agricultural economic links. Additional activities continually service these businesses, including research, transportation, packaging, storage, futures markets, advertising and promotion (Davis and Goldberg 1957, FAO 1997, Holt and Pryor 1999, and Newman, et al. 1989).

All these agribusiness activities are totally dependent on primary production from either home or abroad. Primary production grows and evolves reflecting agribusiness, and agribusiness grows and evolves reflecting primary production. They are inextricably connected. Ignoring the large economic contributions of primary agriculture to these rapidly growing agribusiness activities presents an incomplete picture of their shared economic world.

For example, many agricultural commodities are used as inputs into food processing in the more developed countries. In Argentina, Brazil, the Republic of Korea Republic and the USA, more than 60 percent of the total agricultural output is used as an input into further economic activity. Contrast this with India, where more than two thirds is consumed directly (Holt and Pryor 1999).

Likewise, the more developed agricultural economies depend on more power, machinery and agro-services. In India, some 70 percent of the total cost of processed rice is paddy rice. In the USA, the rice is less than 6 percent of the total cost (Holt and Pryor 1999). While the share of service-related input costs in the USA is more than 20 percent, in Mexico and the Philippines it is less than 1 percent. The overall importance of agribusiness as a share of total GDP is seen in Table 2.2. In addition, the associated agribusiness industries and firms provide a ready-made

interest group able to lobby, argue and articulate the economic importance of primary producers.

Table 2.2   Share of Agriculture and Agribusiness in GDP

Country	Share of GDP			Share of manufacturing and services in agribusiness
	Agriculture	Agriculture-related manufacturing and services	All agribusiness	
	...................................percent........................			
Philippines	22	38	60	70
India	31	45	76	60
Malaysia	17	26	43	73
Indonesia	19	29	48	63
Thailand	12	37	49	79
Republic of Korea	7	22	29	82
Chile	7	25	32	79
Argentina	6	20	26	73
Brazil	8	18	26	79
Mexico	7	19	26	75
United States	2	4	8	91

Source: Pryor and Holt, 1999.

Agroindustrial development can be important for accelerating regional economic development (Reardon and Barrett 2000). Various studies argue a variety of benefits from agroindustrial firms including how they can contribute to economic transformation by generating income, improving food security, providing environmental benefits, and helping small-scale farmers to survive in times of economic crisis (Anwar 1991, Giovannucci 2001, Hayami and Kikuchi 1987, Nasution, et al. 1991, and Schejtman 1994).

Hayami et al. (1987) reveal that agroindustries, especially small-scale and medium scale firms, have been important economic drivers, job creators and income generators for rural areas. Despite the fact that some agroindustries have contributed to environmental problems, the majority could help to improve environmental quality (Giovannucci 2001). Innovative enterprises can generate value to agricultural by-products previously considered as waste and pollutants. Innovative enterprises have made great strides in helping to develop and adopt technologies that can replace petroleum products in products such as plastic packaging with renewable resources such as starch thereby also making these products more readily recyclable. There are many industrial uses of agricultural products, which are barely exploited such as the use of agricultural waste to produce efficient energy and to make commercial building materials such as fibreboard.

Appropriate inputs to help intensive farming and improved fertility that leads to less pressure on marginal production lands mean less environmental degradation. Active, plant-based systems can be used to transform pollutants such as mine tailings and heavy metals and even to completely purify drinking water on a commercial and municipal basis without the use of chemicals. The major task is to make the technologies commercially viable and broadly disseminated. Effective agro-enterprises utilise scarce resources effectively and coordinate the supply chain, reducing post-harvest losses and improving the efficiency of the entire

food and fibre chain. The energy for processing, storage, and transportation can be significantly reduced by an efficient supply chain and more so when enterprises use renewable energy sources such as agricultural waste with which current technology can supply fuel, packaging material, and fertilizer.

However, Giovannucci (2001) argues that either because of its complexity or because of the many new developments in the field, agribusiness is sometimes misunderstood. He goes on to describe five myths that frequently hinder an appropriate understanding of agribusiness contributions to development.

1. Myth one: Agribusiness is big business. In fact more than 90% of agro-enterprises are small-scale and rural.
2. Myth two: Agribusiness is private sector and does not get the attention of development practitioners. This is not true as it is clear that the success of agribusiness is linked intimately with the governance policies.
3. Myth three: Agribusiness is a small niche of the economy. This is not the case as agribusiness cuts across many sectors of the economy and its multi-sectoral roles are critical to nearly every developing economy.

4. Myth four: The role of agribusiness declines as a country develops. The facts show quite the opposite, as in many developing countries agribusiness continues to grow as major contributor to export, production, employment and GDP.

5. Myth five: Agribusiness is a danger to the grower. This is not true, as agribusiness serves growers as their primary support, because neither agricultural production nor the agricultural market can function without each other.

Moreover, the mishandling of agroindustrial development could also lead to an unwanted outcome. Frequently the agroindustrialisation process ends up with an industrial concentration that excludes small and undercapitalised firms and farmers, substitutes domestic inputs, labours and entrepreneurs for imported ones as well as enriching urban elite at the cost of rural poor. Therefore, if agroindustries are not carefully encouraged and guided by undistorted markets and appropriate policies, their development may accentuate the prevailing gap in income, deepen poverty, and damage the natural environment (Reardon and Barrett 2000).

2.5 Conclusion

Accentuation of agricultural development and utilising its comparative advantages can be one relevant alternative for the purpose of income redistribution. Agriculture can function as economic ballast in a region

experiencing a hard time or crisis. Agricultural improvement becomes a binding constraint for economic growth in Indonesia after the crisis, because the crisis delays recovery in industry and service sectors. Moreover, some emerging issues regarding agricultural trade, as part of WTO, indicate the importance of agricultural development as well. In addition, agriculture ensures economic transformation takes place smoothly. It fosters rural development and reduces regional disparity by creating income for farmers and generating multiplier effects in rural areas. Agricultural development can also ensure food security.

Agroindustry occupies a strategic position in agricultural development in particular and economic development as a whole. It has a wider effect on the welfare of the family and rural community, not only affecting farm aspects such as number and size, control and ownership, or the marketing of input and output. Agroindustry can serve as a bridge for economic transformation, generate employment in rural areas, prevent urbanisation, improve income for the poor, create some positive externalities for society in general, help small-scale farmers to survive, and also enhance growth with equity.

3 Growth and Equality in Indonesia

3.1 Introduction

Indonesia is one of the world's largest countries with a population of more than 200 million in 2000. The country occupies an area of about 2 million square kilometres, consisting of 13,000 islands. Since independence in 1945, Indonesia has experienced many remarkable and impressive accomplishments, including consistently strong economic growth, poverty alleviation, population growth reduction and improvements in food security. The country's rice self-sufficiency program is often cited as an important achievement in agricultural development. Indonesia went from being the world's largest rice importer in the 1970s to becoming self-sufficient by 1985 (Fane 1991). Hill (1998) describes Indonesia's success story in economic development as one of the most remarkable successes of the last thirty years. Indeed Indonesia is known as one of the *East Asian miracle economies* (World-Bank 1993). Despite its status as a miracle economy, Indonesia faces disparity issues between urban and rural, rich and poor, and Java and non-Java.

Section 3.2 presents an overview of economic development in Indonesia as one of the East Asian Miracle Economies. Section 3.3 particularly focuses on the economic crisis, its effects on the Indonesian economy, and the opportunity of agriculture. Section 3.4 discusses the new

paradigm of agricultural development in Indonesia. The purpose of agricultural development in the new paradigm has changed from production oriented into employment and farmer welfare oriented. Section 3.5 describes the economy of the South Kalimantan Province as the research study case.

3.2 An Overview of Indonesia's Development Policies

Since the 1960s, the economy of Indonesia has been growing consistently. After a slow start it has gradually increased its pace. Figure 3.1 illustrates the annual growth of sectoral value-added in Indonesia. Briefly, in the earlier period agriculture seems to be more dominant whereas industry is generally more dominant. In the recent period services stand out.

Figure 3.1 Indonesia Sectoral Value Added (Annual Percent Growth)
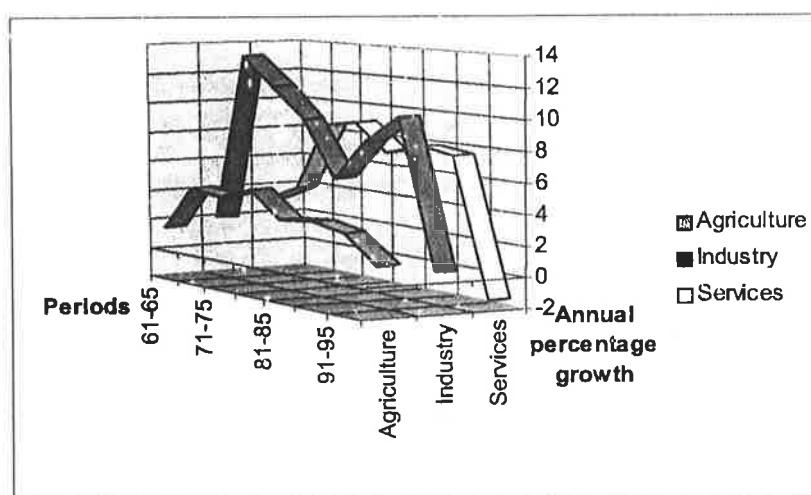
Source: Adapted from 2001 World Development Indicators CD-ROM, World Bank 2002

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Growth variation in terms of changes in sectoral value-added shares in GDP is recorded in Table 3.1.

Table 3.1   Changes in Sectoral Value Added Shares of GDP of Indonesia (Percent)

Year	Agriculture	Industry	Services
61-65	53	14	33
66-70	49	15	36
71-75	36	28	36
76-80	28	37	36
81-85	23	39	38
86-90	22	36	42
91-95	18	40	42
96-00	17	44	39

Source: Adapted from 2001 World Development Indicators CD-ROM, World Bank 2002

For some time after independence, Indonesian policymakers faced a number of difficult issues. Firstly, as the country's rice yields were among the lowest is Asia, Indonesia's agricultural policymakers began implementing a series of strategic initiatives in the late 1970s. Between 1976 and 1980, even though rice accounted for 70 percent of the area in food crops and engaged 40 percent of agricultural employment, Indonesia imported more rice than any other country in the world.

Secondly, poverty was heavily concentrated in agriculture. Around 55 million Indonesians lived in absolute poverty and 75 percent of households in this category depended on agriculture for jobs, income and food.

The country's overall socio-economic structure presented a third set of problems. More than 60 percent of the total population was concentrated

in Java and Sumatra with Java contributing 60 percent of rice output and 70 percent of maize and soybean output.

Fourthly, most farms in Indonesia are very small, even by Asian standards. For example, in the late 1980s, only 2 percent of the farms in Java had more than 2 hectares and an estimated 18 million farm households had access to less than 1 hectare of land.

In an attempt to resolve these problems, policymakers implemented agricultural programs and economic policies aimed at making the country self-sufficient in rice. These rice self-sufficiency initiatives involved a range of food and agricultural policies aimed at boosting rice production. The government established investment programs, import restrictions, procurement policies and price controls. Rice intensification provided irrigation, fertilizer, pesticides, HYV seeds, credit extension, technical assistance and related capital improvements. Irrigation alone is credited with contributing to around 50 percent of the growth in rice production through increased yields during the 1980s and early 1990s. In total, the rice area under HYVs increased by 75 percent since the late 1970s, bringing the new technology to 3.5 million hectares and 6 million farmers.

The subsidized inputs and credit expanded marketing channels and extension services contributed to sharp increases in fertilizer and pesticide use. Fertilizer subsidies kept the retail price 40 percent below its economic value and helped keep Indonesian farm-gate prices among the

lowest in Asia during the 1980s. Fertilizer applications increased by 500 percent in many areas, with application rates more than twice those in the Philippines and three times those in Thailand (FAO 1997). Subsidy programs maintained a prominent role throughout the 1980s. By 1987, the fertilizer subsidy alone consumed 35 percent of the government's expenditure on agriculture. The irrigation subsidy cost about US $110 per hectare. Together, rice-related subsidies for fertilizers, pesticides, HYV seeds, credit and irrigation amounted to more than US $1 billion per year in the late 1980s. In the early 1990s, budgetary expenditures on fertilizer subsidies to Indonesian farmers were around $500 million per year (FAO 1996).

With rice receiving most of the policy attention and financial resources, its economic importance meant that the entire agricultural sector performed well during the 1980s. Agricultural GDP increased by 4 percent per year and the sector accounted for more than half the total number of jobs created during much of the 1980s, contributing up to 1.3 million jobs each year (FAO 1997). Export crops, livestock production and fisheries all recorded strong performances as well, growing by at least 4 percent per year. Forestry was the only subsector to decline, as a result of a ban on log exports aimed at increasing value added in the sector. Exports of wood products increased from $1 billion in 1985 to $3.4 billion in 1990.

Moreover growth in agricultural output rose at a faster rate than employment. This productivity increase contributed to higher real incomes in rural areas and significant improvements in nutrition levels, mortality rates and rural services. The country's poverty rate has dropped to around 12 percent, reducing the number of rural poor by more than 20 million since 1980 (FAO 1997).

By the mid 1990s, agricultural policy focus turned towards resource efficiency and long-term productivity issues. Policymakers began considering the economic and ecological importance of agricultural diversification as well as issues of sustainability for a number of reasons. The limits to rice production in Indonesia were being recognized, if not realized; consumption patterns began to change as incomes increased, putting new pressure on livestock, feed grains and related trade and domestic policies; the need to improve export crop performance coincided with the need to develop the economic potential of the outer islands; and two causes of natural resource degradation began to attract the attention of policymakers:

1) pesticide, fertilizer and water mismanagement associated with subsidies and
2) broader sustainability issues related to watershed management, forestry resources and marine and coastal degradation.

Policy reforms reflected this evolving focus. The government phased out pesticide subsidies, and Indonesia's highly successfully integrated pest management programme (IPM) provided farmers with innovative technology aimed at minimizing pesticide and fertilizer use. The majority of the participating rice farmers reduce pesticide and fertilizer use, while maintaining yields. By substituting labour and new techniques for cash inputs, net returns often increased. Most credit subsidies ended in 1990, and a three-year phase out of fertilizer subsidies began in 1991.

(Anderson and Pangestu (1995) document how heavily distorted the agriculture and the rural sectors had been in Indonesia prior to the 1970s. However, during the 1970s and 1980s, more open trade policies were adapted. Agriculture's contribution in GDP comprised more than half in the mid-1960s and early 1970s. In employment, it absorbed more than two thirds of the workforce and in export its share was more than half. After this period, agriculture's relative importance decreased faster than in the previous decades. Although the decline has been speedy, from an international perspective it has been no faster than Malaysia and Thailand and is slower than South Korea and Taiwan.

The shape basically is influenced by three major factors: external events, domestic macroeconomics and non-agricultural policies and domestic agricultural and food policies. The external events have stemmed from the massive petroleum export revenue boom during the period of the

70s-80s. This led to resource (labour) movement towards the new petroleum sector, adjustment in the market for non-tradable sectors and adjustment in investment. Agriculture's share in GDP and employment fell in the period whereas export oriented manufactures increased. However, investment was directed toward supporting agriculture and therefore reduced the de-agriculturalisation influences.

The domestic macroeconomic and non-agricultural policies originate from three sets of policies outside agriculture (Anderson and Pangestu 1995): macroeconomic management, financial sector policies and industrial trade and investment policies. During the past two decades, macroeconomic management has been appropriately adapted including careful control over monetary and fiscal policies. In the financial sector however, the government applied a more interventionist approach to financial, industrial and trade policies. The intervention that prevailed in the 1960s became to some extent even worse during the petroleum price boom of the 1970s. Substantial deregulation and liberalisation of foreign trade and investment were initiated in 1985. These policies provided chances and incentives for industries that had not received much assistance to expand, and for Indonesia these include agriculture and unskilled labour-intensive industry (such as clothing).

The domestic food and agricultural policies are marked by the increase in rice production described above with intervention in other food markets

also being substantial, particularly for wheat flour, soybean, and sugar. However, farmers benefited little from these interventions and the main losers were the consumers.

The consequences of the three major factors affecting agriculture above indicate that for Indonesia, the reform process still has a long way to go to reach the condition where the anti trade policy bias and distortions within agriculture are eliminated and the relative incentives reach the free trade level.

There are several factors affecting Indonesia's prospective structural changes, including past and present WTO trades rounds, changes in multilateral trading systems, regional integration initiatives, reforms in some economies from plan to market, and unilateral reforms in other developing countries. To help boost agricultural performance some alternative developments in domestic non-agricultural policies need to be considered. These include: an acceleration of the trade liberalisation program, acceleration in privatisation and domestic deregulation schedules, accelerated improvement in rural infrastructures, expanding investment in human resource development, appropriate factor market intervention, and promotion of direct foreign investment. For the agricultural policies, the alternative development policies needed are those that: will induce a change in the farmer's purchase price for input toward its shadow price, induce the development of more appropriate

technologies, support the development of relatively higher price agricultural products, and reduce support for agricultural products that have less comparative advantages such as sugar and soybean

In 1986-1997, economic growth increased sharply. The policies of micro-economic reform, fiscal austerity and the effective management of the exchange rate appeared to be the cause of this (Hill 1996). Hill also reports that the strategy supported the private sector, as the commercial strength and independence of financial sectors were growing significantly.

In addition, policies to promote the distribution program were being introduced during this period. Some programs, such as foster-parent, smallholder nucleus estate, cooperatives' share transfer and the likes were being introduced (Chalmers 1997). Anderson and Pangestu (1995) imply that had been some significant liberalization within this period, as well as notable agricultural policy improvements and rural development initiatives.

The World-Bank (1993) summarises that as one of the East Asian miracle economies, Indonesia has two essential elements that contribute to its remarkable success in economic development. These are right fundamental economy and careful policy intervention. According to the World Bank, the strength of Indonesia's policies is the export-push strategy. The World Bank also describes some of the powerful

instruments being used for export promotion. These include creating a free trade environment for exporters, providing finance and support services for small and medium scale of exporters, improving trade related services, supporting direct foreign investments which are export oriented, and improving export-related infrastructure.

Indonesia's policies in improving food security and alleviating poverty were remarkable (Tabor, et al. 1999). Per-capita food availability rose from about 2000 calories per-day in the 1960s to almost 2700 calories per-day in the early 1990s (FAO 1996). Meanwhile, the population on the poverty line dropped from around 70 million (60 percent) in 1970 down to 22.5 million (less than 11 percent) in 1996. The income per-capita increased from US$ 70 in 1970 to US$ 700 in 1996, and subsequently improved and stood at US$ 1000 per-annum (Manwan, et al. 1998).

Using a strategy of involving the poor to actively participate in economic development leads Indonesia to the situation, which is described by Sen (1981) as growth mediated security. Food availability and the significant improvement in poverty alleviation indicate that the policies were successful. The policies contain six key elements: agricultural development that is self-sufficiency oriented, rice price stabilisation, rural infrastructure investments, human resource development, labour intensive industrialisation and technological improvement of smallholder food crops (Amang, et al. 1996 and Tabor, et al. 1999).

The impact of the development process has been uneven in terms of regions. For example, human resources and capital as well as highly educated people are concentrated in Java. Consequently, the rate of economic growth in Java is faster, as industries take advantage of their skills and knowledge. The Java-centred policy causes some particular regions to grow much faster than the other regions of Indonesia. Table 3.2 reveals statistical data demonstrating how Java dominates the share of GDRP.

During the period of 1995-1998, more than a half of GDRP is from Java. Sumatera stands at second place with around 21 percent. Kalimantan, Sulawesi, and other regions have less than 25 percent.

This regional disparity problem could become greater. Developed regions, wherein the economic activities are accumulated, will grow faster and will provide some incentives to trigger the provision of public facilities. In turn, this will attract more capital to come in, fostering further economic growth. On the other hand, in less developed regions, economic activities as well as the amount of capital to pursue economic growth are limited.

Table 3.2. The Distribution of Gross Regional Domestic Product at Current Market Prices by Provinces, 1995-1998 (percent)

Provinces	1995	1996	1997	1998
DKI Jakarta	16	16	16	16
Jabar	17	17	17	16
Jateng	11	10	10	9
Dista Yogyakarta	1	1	1	1
Jatim	15	15	15	15
JAWA	60	60	60	58
Dista Aceh	3	3	3	3
Sumut	6	6	6	5
Sumbar	2	2	2	2
Riau	5	5	5	5
Jambi	1	1	1	1
Bengkulu	0	0	0	0
Lampung	2	2	2	2
Sumsel	3	3	3	4
SUMATERA	22	21	21	22
Kalbar	2	2	2	2
Kaltim	5	5	5	6
Kalteng	1	1	1	1
Kalsel	1	1	1	1
KALIMANTAN	9	9	9	10
Sulut	1	1	1	1
Sulteng	1	1	1	1
Sultra	0	0	0	0
Sulsel	2	2	2	3
SULAWESI	4	4	4	5
Maluku	1	1	1	1
Bali	2	2	2	2
NTB	1	1	1	1
NTT	1	1	1	1
Irian Jaya	2	2	2	2
Timtim	0	0	0	0
OTHERS	6	6	6	6
TOTAL	100	100	100	100

Source: Adapted from Statistics Indonesia, 9 March 2000
http://www.bps.go.id/statbysector/natreg/grdp/table4.shtml

Table 3.3 reveals that investments are concentrated in certain regions only. The data shows that more than a half of the entire investments are in the Western Indonesian Region (*Kawasan Indonesia Barat*), particularly in Java and Sumatera. Only for the period of 1996/1997, the investment in Java was less than 50 percent. However, it was still the largest compared to the other regions of Indonesia.

Another region where the investments are concentrated is Sumatera. As shown in Table 3.3, this region stands at the second level in terms of domestic investment. In 1993/1994, investment in this region was around 12 percent of the total investment in Indonesia. Since then, it has shown a tendency to increase, peaking in 1996/1997 with the share of investment at 29 percent

Table 3.3 Share of Domestic Investment by Provincial Area 1993/1994-1997/1998 (Percentage)

No Provinces	93/94	94/95	95/96	96/97	97/98	Pop'00 (%)	Inv/Cap
1 DKI Jakarta	23	7	18	13	6	4	1.40
2 Jabar	27	32	24	22	32	18	1.75
3 Jateng	8	10	5	3	6	16	0.38
4 Dista Yogyakarta	0	1	0	0	0	2	0.00
5 Jatim	11	14	8	6	11	18	0.62
JAWA	**70**	**64**	**55**	**44**	**56**	**58**	**0.97**
6 Dista Aceh	1	1	0	0	2	2	1.00
7 Sumut	1	1	1	2	4	6	0.67
8 Sumbar	1	1	0	1	2	2	0.92
9 Riau	5	5	3	6	9	3	3.55
10 Jambi	2	2	1	1	10	1	8.11
11 Bengkulu	0	0	1	0	0	1	0.00
12 Lampung	1	1	2	1	2	3	0.58
13 Sumsel	2	2	1	7	1	4	0.28
SUMATRA	**12**	**17**	**22**	**29**	**19**	**22**	**0.88**
14 Kalbar	1	1	4	9	2	2	0.97
15 Kaltim	6	2	7	3	5	1	3.98
16 Kalteng	0	3	2	1	1	1	1.05
17 Kalsel	3	0	1	2	4	2	2.62
KALIMANTAN	**10**	**6**	**14**	**15**	**13**	**6**	**2.24**
18 Sulut	2	1	1	0	0	1	0.00
19 Sulteng	1	0	2	2	1	1	0.88
20 Sultra	0	1	0	1	1	1	1.07
21 Sulsel	0	1	2	1	2	4	0.49
SULAWESI	**2**	**3**	**5**	**5**	**4**	**7**	**0.55**
22 Maluku	4	3	0	0	1	1	1.62
23 Bali	2	4	1	1	0	2	0.00
24 NTB	0	0	0	0	1	2	0.49
25 NTT	0	0	0	0	1	2	0.50
26 Irian Jaya	0	2	2	5	2	1	1.76
27 Timtim	-	0	0	0	3	-	
OTHERS	**6**	**9**	**3**	**7**	**9**	**7**	**1.21**
TOTAL	**100**	**100**	**100**	**100**	**100**	**100**	**1.00**

Pop'00 (%) is percentage of population in 2000
Inv/cap is Per capita Investment, approached by investment (%) –population (%) ratio
Source: Counted, based on Bappenas, 9 March 2000 http://www.bappenas.go.id/bap_eng.html
and BPS Indonesia, 9 March 2000, http://www.bps.go.id

On the other hand, Kalimantan, Sulawesi and others regions, which are commonly known as the Eastern Indonesian Region (*Kawasan Indonesia Timur*), only have a few shares in domestic investment. In 1997/1998, they respectively comprised shares of 13 percent, 4 percent, and 9 percent. This meant that domestic investment in these areas altogether was still less than investment in Java alone or about the same as the investment in Sumatera.

In terms of per capita investment, that is investment in a region weighted by the population in that region, the data show that Jawa is not the highest. The highest per capita investment is for Kalimantan (2.24). This is explained by the fact that population is concentrated more in Jawa (58%) and Sumatra (22%), while in Kalimantan the population is still very low (6%).

Some of the less developed regions do have good resource endowments. However, the benefits of these resources go mostly outside these regions, because commonly the resource is utilised using capital owned by people from outside the regions, especially from the developed regions. In addition, the central government only allows the local government a small amount of the royalties.

The majority of benefits leave the rural areas for the capital city. Consequently, the less developed regions are left behind in the

development process. This situation seems to take place during the process of development in Indonesia, and recently, especially after the crisis began to hit the Indonesian economy in the middle of 1997, this has become more apparent, and can be applied not only to regions but also to people.

Unlike the inverted-U hypothesis, in Indonesia instead of decreasing as Gross National Product (GNP) per capita increases, the gini ratio even shows a propensity to increase following the increase of GNP/capita.

Figure 3.2 Gini Ratio and GNP/Capita in Indonesia 1964-1999
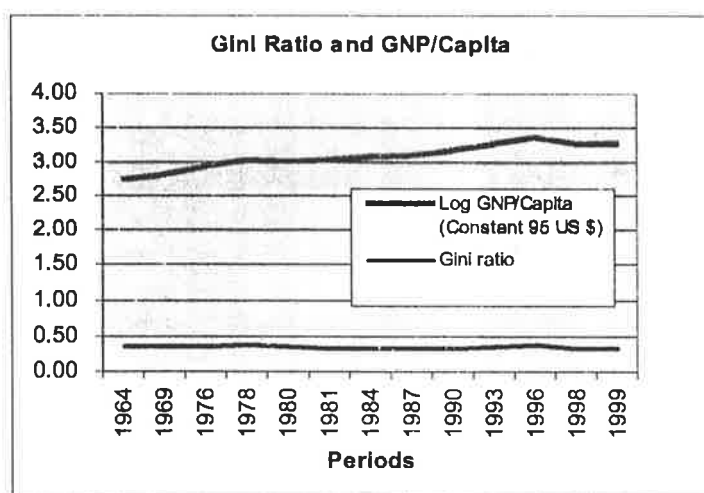
Sources: Compiled data. GNP/capita from 2001 World Development Indicators CD-ROM, World Bank 2002. Gini ratios from United Nation Support Facility for Indonesian recovery (UNSFIR) 11 July 2002 http://www.unsfir.or.id/monitoring/social/social_tabel02.htm

Despite the impressive result of Indonesia's development to reduce the number of poor people, there is no evidence to conclude that income

equality is improving in Indonesia, particularly when GNI per capita is used as evidence.

Sasono (1999) states that 99.8 percent of the industries are small-scale with a GDP share of only about 38.9 percent, whereas the remaining 0.2 percent industries are large-scale industries with GDP share stands at 61.1 percent. In addition, Arief (1999) has another picture of this gap. He notes that conglomerates consisting of about 200 people have more than 50 percent of the share of GDP, whereas the ordinary people consisting of about 210 million people (minus the 200 conglomerates) have the rest.

The problems of regional disparity and income inequality provide very clear evidence that the strategies of development, which have been implemented so far, certainly need some re-evaluation and re-formulation. For Indonesia, further concern to the disparity problems is apparently becoming very critical in determining the strategies, in order to continue a safe development process (Chalmers and Hadiz 1997).

3.3   Economic Crisis and Agriculture's Opportunity

Indonesia's most recent economic crisis began with the rupiah's depreciation in mid July 1997. A 1998 World Bank report suggests four key microeconomic causes of Indonesia's crisis: (1) the rapid build up of private debt, (2) well-recognized flaws in the banking system, (3)

inadequate governance, and (4) the timing of the crisis in relation to political events. In a very short period, the crisis changed Indonesia's economic development performance. Corden (1998) reports that the crisis resulted in millions of people in Indonesia being pushed back into poverty. In 1998 the number of poor people in Indonesia rose sharply, reaching 39 percent or about 79.4 million people (Republika 1999). Meanwhile the cost of living increased (Booth 1999) and the gap between living standards become more visible and the disparity of regions becomes greater (Bresnan 1993).

Erwidodo et al. (1999) argue that Indonesia's capacity to address the crisis was greatly complicated by forest fires, drought, floods and a sharp decline in crude oil prices. During 1997, one million hectares of forest fires in Kalimantan and Sumatra damaged ecosystems, destroyed crops, disrupted transport and tourism, increased the incidence of respiratory problems and strained Indonesia's relations with neighbouring Singapore and Malaysia. Estimates of the economic damage to Indonesia's logging and timber industries (excluding environmental and health costs) are set at more than US$900 million. One estimate of the 1997 fire's impact on increased health care costs and foregone tourism income for Indonesia, Malaysia and Singapore is US$1.4 billion (Solahuddin 1999).

A prolonged drought throughout 1997/98 reduced export crop production and, more importantly for the country's food security objectives, contributed to a large drop in paddy production. Initial estimates suggest

that the 1998 paddy crop is nearly 10 percent below the 1996 production level (FAO 1996). The drought's impact has been worse in the islands of the country's east, which is drier and contains a higher proportion of low-income households than Java.

Based on SUSENAS 1996 data, around one-third of the country's population spend 70 percent or more of their total expenditures on food. Thus, the collapsing demand, rising unemployment, falling food production, increasing food prices and rapidly expanding numbers of malnourished stress the fundamental role agriculture must play in revitalizing the economy. The agricultural sector's potential to contribute was initially greatly enhanced by crisis-induced policy reforms, which intended to remove many of the long standing disincentives facing non-rice producers, traders and processors. This dramatically changed policy environment provides an important foundation for the agriculturalisation of the economy. Later, however, the reforms were weakened.

In agricultural and rural development, the steady improvement of three decades was abruptly interrupted by the financial shocks of the 1997 crisis as well as the environmental shock of drought (Solahuddin 1999). However, some sectors of agriculture have chances to gain benefits. Booth (1999) suggests that for the regions where cash crops are produced for export, benefits come from the increase of the rupiah prices of the crops because of rupiah depreciation, particularly of rubber, coffee, pepper, cocoa, tea, spices, palm oil and copra. The data on estate crop

exports support this. During the crisis period almost all of important estate crops in Indonesia increased their productions (Table 3.4), as did the export of agricultural products (Figure 3.3).

Table 3.4   Indonesia's Estate Production by Crops 1988-1999 (Ton)

Year	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999+)
Hevea Rubber	334,400	327,000	315,300	330,100	335,000	335,000	326,400	341,000	334,600	309,800	330,836	309,685
Palm Oil	1,609,300	1,860,400	2,096,900	1,843,600	2,186,000	2,288,300	1,930,300	2,476,400	2,569,500	2,980,900	3,855,397	3,966,901
Palm Kernel	324,700	410,400	445,800	406,200	483,100	524,600	472,100	605,300	626,600	708,300	778,371	815,851
Cocoa	39,600	39,100	41,500	30,600	39,500	42,700	43,700	46,400	48,800	59,700	83,070	70,908
Coffee	28,800	32,400	25,500	26,400	23,900	20,900	19,700	20,800	28,500	23,000	24,111	24,968
Tea	108,200	122,200	129,100	125,000	113	100,000	98,000	111,100	132,000	118,400	157,266	144,945
Quinine	2,700	1,800	1,900	2,100	2,700	600	300	100	400	100	781	844
Cane Sugar1)	2,044,100	2,071,400	2,173,200	2,233,300	2,344,600	2,336,100	2,420,700	2,104,700	2,160,100	2,166,700	1,931,604	2,270,623
Tobacco1)	4,300	4,100	3,500	4,900	7,500	3,100	5,100	9,900	7,100	8,100	6,648	7,209
Rosella1)	13,400	9,700	14,800	5,300	9,300	18,400	16,400	12,700	4,900	9,600	3,945	3,569

Note:

1). Including production which uses raw materials from smallholder.

+). Estimation figures.

Source: BPS 5 August 2000, Statistics Indonesia. http://www.bps.go.id/statbysector/agri/kebun/table2.shtml.

Figure 3.3   Exports by Sectors in 1997 and 1998
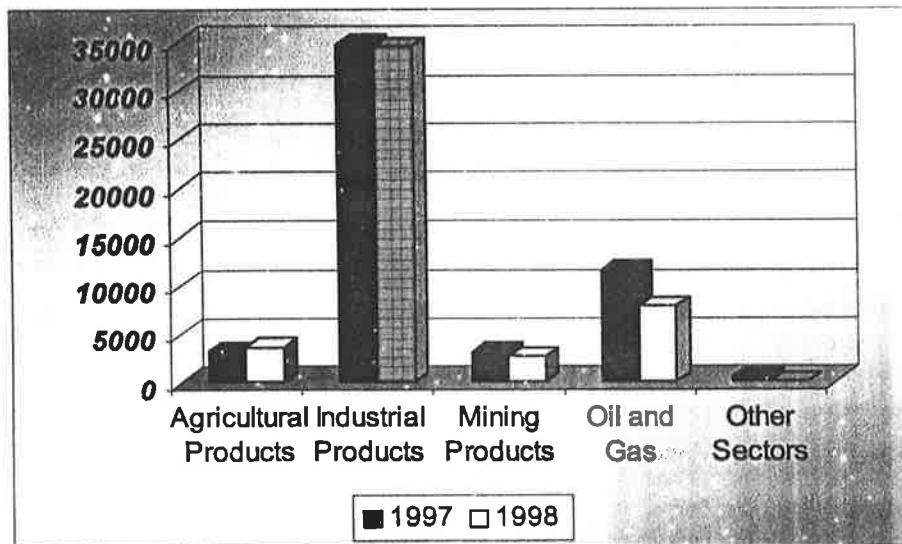
Warr (1999) proposes more emphasis be given to agriculture because it can function as economic ballast for a region experiencing hard times such as crises. One can return to agriculture when other industries are in contraction. Tabor et al. (1999) and Erwidodo et al. (1999) support this view. They argue that agricultural growth contributes best to economic growth in Indonesia because of the delays and lags expected in investment in the industrial and service sectors.

Raising the income of the poor requires economic recovery. An agriculture-led recovery offers the best opportunity to support sustainable

growth while addressing food security, poverty and income distribution problems. An improvement in agriculture provides jobs, food and income.

Besides its contributions to food security and overall economic growth, the prospect of agricultural trade is another emerging issue that can enhance agriculture in Indonesia.

Solahuddin (1999) argues that trade and investment liberalisation, as the consequence of Indonesia's commitment on WTO, have some implications for Indonesian agriculture. Indonesia's market must be open for importing products as well as input factors. Moreover, in the 21st century, there will likely be increasing tension in agricultural sectors in developing countries, as the US and European Union compete to establish their outlets in Third World countries (Guyomard, et al. 2000). Therefore, agribusiness activities need to be self-reliant, capable of withstanding pressure and standing firm in competitive situations. The dependency on government subsidy schemes needs to be reduced. Moreover, agribusiness needs to be opened up to foreign investors.

3.4 The New Paradigm of Agricultural Development in Indonesia and Agroindustry

Every country has its own unique characteristics, including specific agricultural development needs. These characteristics, including physical endowment, cultural heritage, and historical context, shape the role of

agriculture in economic development (Johnston and Mellor 1961). In particular, in relation to agricultural development, the structural foundations of developing countries are often widely different to those from OECD countries. Therefore, the formulation of an agricultural development policy should consider this appropriately, because an appropriate agricultural development strategy for one economy could be inappropriate for another.

It should be noticed as well that not only direct policies affect the performance of agriculture but also indirect policies. Some evidence even indicates that indirect policies have stronger effects than the direct ones (Alexandratos 1995 and World-Bank 1986). Schiff and Valdez (2000) reveal that the indirect effects of industrial protection and real exchange rate overvaluation were almost three times higher than the direct effects of agricultural pricing policies. Brown and Golden (1992) found that the negative-indirect effects of economy-wide policies offset the positive-direct effects of agriculture-specific policies.

Moreover, all those characteristics are dynamic, and changing along the process of economic development. Reardon and Barrett (2000) provide a conceptual framework of what they called as 'conditioners'; the changing factors condition the industrialization of agriculture and the effect of agroindustrialisation on development indicators. They argue that the shape of agroindustries in developing countries will be determined by

some factors, which originate from the so-called meta-trends of change in population, income growth, urbanisation, employment, political economy, modern technology and so forth.

These meta-trends then nourish the change of the global agrifood economy, which includes globalisation as well as liberalization through WTO, technological changes, institutional changes, Free Trade Areas, and market opening. All those changes influence the evolving characters of agroindustries in a developing country, such as scale, concentration, coordination, and capital intensity. Product composition changes as well as globalisation of market and ownership are also included. In turn, these inevitably affect some development indicators including income, poverty and equality, employment and wages as well as natural resources and socio-culture (diet, tradition, decision making etc).

To deal with these changes, the adjustment capacity is needed, both to adjust to the original resources endowment and to the accumulation of resources during historical economic development. To induce technical and institutional changes, the policy should be able to stimulate both farmers and agribusiness firms, as well as of scientists and public administrators, to respond to the dynamic changes of resources and conditions (Ruttan and Hayami 1984).

In the past, agricultural development in Indonesia was mainly carried out through four primary programs namely intensification, extensification, diversification and rehabilitation. Intensification was technological improvement to intensify the usage of a certain farm resource particularly land. Extensification was the opening of new agricultural land. Diversification was assigning different type of farm systems as well as crops on a certain land or farm unit, and rehabilitation was purposed particularly to rehabilitate land as well as irrigation systems. The ultimate mission was to ensure the provision of agricultural products, especially food, at a low reasonable price to support the industrialization process undertaken by the country (Adjid, et al. 1998).

Since the late 1980s, the government of Indonesia has modified its agricultural policy to anticipate the changes in the local and global economic environment. The development paradigm of how to increase agricultural products at a faster rate to ensure food availability and to support industrialization has changed into how to increase the income and welfare of the farmers. The future challenge for Indonesia is how to make more employment that is productive and available in rural areas (Suryana, et al. 1998).

One new paradigm of agricultural development for Indonesia is to optimise natural resources and distribute the benefits widely to the rural community. A strategy that integrates different components including technical,

biophysical, socio-economic, and institutional, into an effective joint program, is needed in order to establish a production system that optimally utilises the available resources in a particular region (Manwan, et al. 1998). The agenda of agricultural development needs to be reformed in order to create agriculture as a leading sector of national economy with more focus on farmers' welfare. It should also increase the linkage of agriculture with other related sub-systems including infrastructure, processing, marketing, and distribution (Solahuddin 1999).

One possible strategy is to promote appropriate capital-intensive and locally specific technology to support the rural based development of agribusiness (Suryana, et al. 1998). Solahuddin (1999) believes that the strategy needs to be efficient, as efficiency is the key word to survive in the global dynamic economic situation.

Holt and Pryor (1999) argue that many countries prefer to focus on non-agricultural sectors in the development process, because they believe that those sectors generate higher growth. However, a rapid transition from an agrarian economy to an advanced economy needs the support of modernized agribusiness that has increasing linkages with other sectors in the economy.

Agribusiness according to the concept formulated by Adjid (1995) is a form of farming with business character. The actors of this farming consistently

try to acquire sustainable value-added in utilising biological process of plants and animals to produce some products as well as related-services that are needed by the community.

As farming, agribusiness is a part of the rural area and rural community. However, different to the traditional agriculture with subsistence orientation, agribusiness is an integral part of the national economy, which provides the needs and absorbs the products of the economy. Agribusiness will operate in the market mechanism framework, but not in the same way as traditional agriculture, which frequently is passive and trapped as the loser; agribusiness is an active player. It can offer competitive products in such aspects as quality, price, as well as services.

Agribusiness is a system made up of several components joining in a dynamic process to produce products and services for consumers or end users. It consists of agricultural sectors and those sectors of industry and services, which have relation to agriculture (Davis and Goldberg 1957). Agribusiness combines the backward and forward linkages of agriculture, and forms a long chain of business from input providers, farm suppliers, intermediaries (assemblers, processors, wholesalers and brokers), traders (importers, exporters, retailers, and distributors), and consumers (Newman, et al. 1989). Its activities include input supply, services, farming, transportation, processing, and marketing, not only for local needs in rural areas, but also extended to urban areas as well as the global market.

Agribusiness consists of four main sub-systems namely (1) input delivery, (2) farming, (3) post harvest and processing (agroindustry), and (4) marketing and distribution (Suryana, et al. 1998).

One sub-system of agribusiness is agroindustry. Agroindustry uses or processes agricultural products as raw materials in its production process (Austin 1981 and Hsu 1997). Agroindustrialisation, as the form of agroindustrial development, involves three dynamic sets of changes. These include: (1) the growth of agroindustrial firms, which provide processing and distribution of agricultural products, as well as the provision of agricultural inputs, (2) organizational and institutional change in agroindustrial firms and farms and the relationships between and within them, and (3) concurrent changes of farm sectors including the changes of product composition, technology, sectoral structures and market structures (Cook and Chaddad 2000 and Reardon and Barrett 2000).

Agroindustrialisation is an industrialisation process of agriculture. This process does not only influence farm aspects such as number and size, control and ownership, the marketing of input and output, but also has a wider effect on the welfare of the family and rural community (D'Souza and Gebremedhin 1998). The change in the farming system caused by the agroindustrialisation process has significant implications on various issues including resource use, enterprise combination, environmental sustainability, the distribution of population, labour mobility, the welfare of

farm families, and the economic and social vitality of agriculture and rural communities.

3.5   South Kalimantan Province as the Case of Study

South Kalimantan province is one of the 26 provinces of Indonesia. It consists of 10 districts (*Kabupaten*) and 117 Sub-districts (*Kecamatan*), occupies 3,738,143 ha area including 551,487 ha (14.75 percent) wet land (*sawah*), 1,828,205.5 (48.91 percent) dry land, 645,119 ha (17.26 percent) forest, 343,407.5 ha (9.19 percent) estate and 369,921 ha (10.62 percent) the others. In 1997, there were 3,020.70 thousand people in South Kalimantan Province. The majority of the working population work in agricultural sectors (47.96 percent), 16.35 percent in trade, 14.15 percent in services, and 11.29 percent in industry. The rest are distributed among communication, construction, mining and finance sectors (B.P.S. of South Kalimantan Province 1998).

South Kalimantan Province has a strategic position, considering its relative short distance and accessibility to the Java, Bali and the Sulawesi Islands. Due to the lack of land resources in Java and Bali, the economic activities obviously will spread from Java to other islands and South Kalimantan Province is a good alternative, provided facilities are available in the region.

South Kalimantan Province's economy steadily grew from 1989 to 1996. However, the 1997 crisis significantly affected growth. As shown in Figure (3.4), there was a sharp decrease in the rate of growth, from 9.7 percent in 1996 to 4.7 percent in 1997 (Ahmad 1997). The drop in the growth rate was particularly caused by three factors: a long drought, the forest fire and the economic crisis. There was even a sector (electricity and water supply) with negative growth rate in 1997. Its growth rate was −3.14 percent (BPS of South Kalimantan Province 1998).

Agriculture still dominates the South Kalimantan Province economy. However, the trend shows that this dominance is declining year by year. In 1995, agriculture had the highest share (22.79 percent) of Gross Domestic Regional Product (GDRP), while industry stood at 23.38 percent. In 1997 industry had taken over the dominance with a 21.10 percent share, while agriculture's share was slightly below industry, it was only 21.03 percent.

Figure 3.4   Growth Rate of South Kalimantan Province 1989-1997
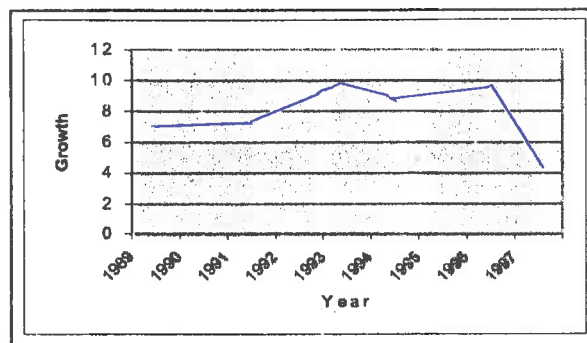
Source: Board of Regional Planning of South Kalimantan Province, 1997

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Other dominant sectors in South Kalimantan Province are 'trade, restaurant and hotel' and 'transportation and communication'. They respectively had a 16 percent and 10 percent share of GDRP in 1997 (see Table 3.5).

Table 3.5   Distribution of GDRP by Sectors, 1995-1997 (Percent)

Sectors	1995	1996	1997
Agriculture	22	22	21
Mining	8	10	11
Industry (Manufacture)	21	21	21
Electricity & Water supply	1	1	1
Construction	6	6	6
Trade, Restaurant and Hotel	17	17	16
Transportation and Communication	10	10	10
Finance	5	5	5
Services	9	9	9
Total	100.00	100.00	100.00

Source: B.P.S. of South Kalimantan Province 1998.

This structure implies a type of growth in the economy of South Kalimantan Province, where agricultural sectors are left behind as industrial sectors are growing. Obviously, the development of the transportation and communication sectors has significantly contributed to the growth of industries. As many facilities, both physical and institutional, are favourable, they attract investment and industrial sectors begin to operate. The activities of these sectors generate multiplier effects, and this may explain clearly, why the 'trade, restaurant and hotel' sector is also dominant in South Kalimantan Province's economy.

Mainly there are four categories of manufacturing industries in South Kalimantan Province: metal machines, chemical, agroindustry and other manufacture. The other manufacture category is for any manufacturing industries not being included in the first three categories. According to the Department of Agriculture (2000) among those four categories, the highest growth is in the chemical industry. Its growth was 3.59 percent in 1997. Agroindustry was in second place with 2.70 percent rate of growth. Furthermore, the growth of agroindustries' exports increased rapidly. Data shows that this export reached 56.08 percent in 1995. In 1994, the export was only US$ 77 million, but in 1995, this increased to US$ 120 million.

According to Ahmad (1997), the Board of Regional Planning of the South Kalimantan Province (Bappeda) outlines that agricultural development in the province is not only for increasing production but most importantly it is for improving the quality of human resources and the quality of social life. Operational policies in agricultural development are focussed on the effort of stabilising the development of agribusiness and agroindustry as well as rural development.

This seems to be synchronous with the new paradigm of agricultural development as suggested by Adjid et al. (1998). They argue that as anticipation to the fact that agriculture is no longer the prime mover of national development, a new paradigm for agricultural development is needed. Since a strong industrialisation process fosters rapid urbanisation

and in Indonesian case disadvantages agricultural growth, they suggest that an agribusiness promotion concept is more suitable. Agribusiness can industrialise and commercialise agriculture by developing a matched link between farming systems and private sectors in rural regions, both upstream and downstream. Using this paradigm, agriculture may attract young and educated people to do business in this sector and attract private sector investment as professionals come to work in the new opportunities in the rural areas.

Specifically, regarding agroindustries, the data shows that in South Kalimantan Province there are 17,881 firms of agroindustries, which consist of 29 types of activities (Table 3.6), distributed within 10 districts of the South Kalimantan Province. Rattan and wood based industries are not included as data for these industries not available.

The complete distribution of types, firms and locations of agroindustries in the South Kalimantan Province can be seen in Table 3.7 (Compiled data from several regional offices of institutions in South Kalimantan Province, including Department of Industry and Trade, Department of Agriculture and Department of Co-operative, 1999). Table 3.7 shows that in Hulu Sungai Selatan district, there are 6,898 firms of agroindustries consisting of 19 types. The district is located more or less in the central area of South Kalimantan Province. This location could be spatially more profitable as a regional growth pole, due to the fact that agricultural

products needed as raw materials for agroindustries, are produced in evenly distributed areas of the South Kalimantan Province.

Table 3.6   The Types of Agroindustries in South Kalimantan Province

No	Types
1	Soy sauce industry
2	Fish paste industry
3	Soy bean industry
4	Herb medicine industry
5	Coffee powder industry
6	Acid industry
7	Tea industry
8	Nut industry
9	Fish chip industry
10	Grape and honey industry
11	Salted fish industry
12	Dry and wet cake industry
13	Banana industry
14	Fruit industry
15	Wheat and Rice flour industry
16	Noodle industry
17	Brown sugar industry
18	Fish flour industry
19	Dried cassava industry
20	Shrimp paste industry
21	Coconut oil industry
22	Coconut cake industry
23	Cold powder industry
24	Bamboo industry
25	Purun industry
26	Coconut handcraft industry
27	Rice mill industry
28	Meat industry
29	Rubber industry

Source: Compiled data from several regional offices of institutions in South Kalimantan Province, including Department of Industry and Trade, Department of Agriculture and Department of Co-operative, 1999

Table 3.7   The Distribution of Types, Firms, and Locations of Agroindustries

No	Districts	Agroindustries	
		Types	Firms
1	Batola	9	57
2	Banjar	14	219
3	Tanah Laut	15	1,258
4	Tapin	18	1,287
5	Hulu Sungai Selatan	19	6,898
6	Hulu Sungai Tengah	16	2,750
7	Hulu Sungai Utara	13	3,766
8	Tabalong	13	1,207
9	Kotabaru	15	387
10	Banjarmasin	11	52
	Total	143	17,881

Source: Compiled data from several regional offices of institutions in South Kalimantan Province, including Department of Industry and Trade, Department of Agriculture and Department of Co-operative, 1999

Banjarmasin as the capital city has only 52 firms of 11 types of agroindustries. This number is the smallest among all districts in the South Kalimantan Province. This situation can help to narrow regional disparities, besides that agroindustries should be located near the raw material locations. This situation is also an indicator that Agroindustry in the regional economy of Banjarmasin has been replaced by the rapid growth of trade and other industrial sectors.

In terms of the scales of agroindustries, they mostly are of a large scale (15,907 firms). Medium scale and small-scale agroindustries consist respectively of only 1,445 and 529 firms. Small-scale agroindustries are mostly located in the district of Hulu Sungai Utara, the northern border area of the South Kalimantan Province. Agroindustries in this district are

mostly in the field of bamboo processing. Meanwhile, the majority of the large-scale agroindustries are located in the district of Hulu Sungai Selatan The distribution of agroindustrial firms based on district and scale can be seen in detail in Table 3.8.

Table 3.8   The Distribution of Agroindustries Based on Scales and Districts (Firms)

No	Districts	Scales			Total
		Small	Medium	Large	
1	Batola	19	1	37	57
2	Banjar	26	16	177	219
3	Tanah Laut	58	277	923	1,258
4	Tapin	29	102	1,156	1,287
5	Hulu Sungai Selatan	35	242	6,621	6,898
6	Hulu Sungai Tengah	11	131	2,608	2,750
7	Hulu Sungai Utara	124	305	3,337	3,766
8	Tabalong	113	172	922	1,207
9	Kotabaru	89	192	106	387
10	Banjarmasin	25	7	20	52
	Total	529	1,445	15,907	17,881

Small Scales = 1-5 labours, Medium Scales = 6 -25 labours, Large Scales >25 labours

Source: Compiled data from several regional offices of institutions in South Kalimantan Province, including Department of Industry and Trade, Department of Agriculture and Department of Co-operative, 1999

South Kalimantan Province is categorised as a part of the eastern Indonesian regions, which was relatively left behind in the development process particularly in comparison to the western Indonesian regions. Income inequality has been an obvious problem in the region, taking form as sectoral, regional or social inequality. Besides that, the many agroindustries that exist in the region vary from small-scale with only family labour to large-scale agroindustries with export-oriented production.

3.6   Conclusion

Indonesia, as one of the *East Asian miracle economies*, has had many remarkable and impressive accomplishments in economic development. Besides these achievements in economic growth, in the three decades before 1997, agricultural development has also been impressive.

Even though the development process in Indonesia has been very impressive, the backwash effects are more dominant than the spread effects. Many resources including human resources are pulled to certain regions in which the economy grows faster. This has resulted in income generation in these regions being greater than in other areas. Consequently, these regions economically grow much faster than the other regions of Indonesia and disparity problems among regions as well as among people are inevitable. These disparity problems are worsened by centralised policy. The policy apparently causes economic growth to be concentrated in some particular regions. Regions in Java Island, where the central government is located, clearly show the tendency of having a higher growth of rate, compared to other regions in Indonesia.

Applying only the policies to promote growth obviously could not ensure the sustainability of the development process in Indonesia, as disparities have caused very serious problems. Development processes in Indonesia need to consider income equality adequately. Since the late 1980s, the government of Indonesia has modified its agricultural policy to anticipate

the changes in the local and global economic environment. The development paradigm of how to increase agricultural products at a faster rate to ensure food availability and to support industrialization has changed into how to increase the income and welfare of the farmers. The manifestation of this new paradigm is to promote agribusiness, and one sub-system of agribusiness is agroindustry.

4 The Use of a Social Accounting Matrix (SAM) to Analyse the Roles of Agroindustry

4.1 Introduction

The idea of a Social Accounting Matrix (SAM) model was developed from the System of National Accounts (SNA) and traced back to Petty's *Verbum sapienti* in 1961, to Marx's simple and extended reproduction models introduced in 1885, and to Quesnay's *Tableau Economique* in 1759 (Stone 1986).

A SAM is a data system that captures the interdependency between various production activities, factors, and households within a socio-economic system. It provides a classification and organizational scheme of a wide range of data for analysts and policy makers (King 1985). SAMs provide a consistent and comprehensive record of economic relationships among production sectors and factors at the individual level, and at the general level of public and foreign institutions (Reinert and Roland-Host 1997). It tracks the flow of payments from production activities to households with various levels of income (Leatherman 1995).

In principle, a SAM is motivated by the needs of a theory that incorporated both the concern of promoting economic growth as well as the concern of income distribution, employment, and poverty alleviation (Pyatt and Round 1985b). A SAM is designed to accommodate the reconciliation of national

income and product accounts and input-output accounts, within one united framework (Adelman and Robinson 1986). This reconciliation contains more information and is able to address a larger range of issues than other macroeconomic models such as econometric models or input-output models (Roberts 1992). SAM is able to combine two important ideas, the Keynesian model of the goods and services market and the structural interdependency among production sectors in an economy (Pyatt and Roe 1977).

4.2   Some Methods Used in Analysing Agroindustry

Many methods have been applied in investigating agroindustries and agroindustrialisation process, ranging from theoretical methods developed based on a wider range of literature developments and empirical methods developed based on actual cases and databases. They vary as to reflect the purpose of analyses from a simple descriptive and tabulation analysis to complicated modelling using large and detail database.

Agroindustry grew rapidly in developing countries over the past two decades (FAO 1997). Agroindustrialisation process links to the complexity of economic and social phenomena, making the process a challenging and interesting topic to be analysed as this is leading to a distinctive economic and social system.   Cook and Chaddad (2000) summarised the literature regarding relevant theoretical and empirical analyses in an

effort to investigate the phenomenon of agroindustrialisation. They provide a brief review of the microanalytical approaches of development economic and agribusiness research. In the development economic approach, they highlighted three distintive features of microanalytical approaches in the literature: endogenised institutions, organisation of marketing channels, and intersectoral linkages.

The endogenised institution approach can be found in the works of North (1990), Hoff et al. (1993), Williamson (1996), and Adelman and Morris (1997). The approaches using organisation of marketing channels are applied in Glover (1990), Barret (1997), Stall et al. (1997), and Key and Runsten (1999). The intersectoral linkage approaches are found in Hirschman (1958), Mellor (1976), Haggblade et al. (1989), and Delgado et al. (1994).

The agribusiness research approach evolved along two equal levels of analyses: agribusiness economics that studies the inter-firm coordination and motivation, and agribusiness management that studies the intra-firm coordination and motivation. The application of agribusiness economics analyses can be found in Davis and Golberg (1957), Golberg (1968), and Marion (1986). The analyses using agribusiness management are applied in the works of French (1977), Barney(1991), Royer (1987), and Westgreen (1995).

Apart from the theoretical methods described above, there have been several empirical methods applied in investigating agroindustries. Diaz-Bonilla and Reca (2000) used patterns of trade in the investigation of trend and policy impacts on trade and agroindustrialisastion in developing countries. They observed several products with various trade patterns, which eventually leaded them to a conclusion that national trade policies in Asia appear to have been relatively more supportive of agroindustries' products and exports than in Latin America and the Caribbean. The also concluded that less developed countries' performance of agroindustrial production and exports is more dependent than ever on the completion of reform in the agricultural trade policies of developed countries.

Holloway et al. (2000) used a Tobit analysis in their empirical work in the Ethiopian highlands. Their study focuses on alternative techniques to develop effective participation of peri-urban milk producers. Based on the Tobit analysis, they concluded that institutional innovations by themselves are not enough to stimulate entry. There have been the needs of complementary inputs including infrastructure, knowledge, and asset accumulation in the households.

Salinger (2002) introduced the use of comparative advantage analysis to assist policymakers in optimising investments and determining the specific parts of agriculture or agribusiness sectors that have the best advantage in relation to international competitors. He also highlighted some empirical

works in agribusiness study that utilised comparative advantage analysis. The first application of this method was by West African team led by Bela Belassa in the 1970s. The method has also been used in Ghana, Cote d'Ivoire, Liberia, Mali and Senegal to find the alternative production system of rice that is most competitive with imports. In Vietnam and Bangladesh, the method was used to analyse the prospect for agricultural sector and export diversification taking dynamic market and technological changes into account. In Mexico, the comparative advantage analysis was utilised in investigating the likely effect of currency devaluation and maize sector liberalisation on production, marketing, trade, processing and consumption. In Romania the method was used to understand how grain and livestock production and marketing decisions changing as the economy shifts from command to market driven incentives. The method has also been used in agro-environmental study in Haiti, to identify what investment will promote sustainable agricultural sector diversification in the absence of functioning public institutions.

While all studies have contributed to the development of knowledge regarding agroindustry, there has not been a particular model specifically designed to investigate the roles of agroindustries both in income equality and growth promotion.

An Input-output (I-O) table based analysis is one possible alternative method to investigate the roles of agroindustrial sectors. The I-O table

has become an increasingly popular means initially for analysing regional economic structure and assisting local economic decision-making as it provides a variety of useful information (Deller 1990).

In its simplest form, an I-O model is a spreadsheet representation of the economy detailing the flow of dollars between producers and consumers of good and services, where all economic activities are assigned to production and consumption sectors (Leatherman 1994). Hasting and Brucker (1993) describes an I-O table as a mathematical representation of a regional economy at a point in time. It is a descriptive tool showing the existing structure of a regional economy, containing information on individual economic sector and the linkages between them. It can show the relative importance of an individual sector to the overall economy and predict local responses to changing economic conditions (Leatherman 1994).

Despite its wide functions and popularity, the I-O table needs to be extended in order to be able to address the issue of growth as well as equality. I-O tables provide one data framework that is useful to identify leading sector, but lack the comprehensive accounting of income flows that is required to study equality. Base data on income flows are also necessary to address labour market dynamics, production structures, and to address government interaction necessary to conduct policy analysis.

A more comprehensive accounting structure for economies is provided through an I-O extension known as a social accounting matrix (SAM).

4.3 The Utilisation of the SAM Framework as Database and as the Model of Analysis

A SAM is a modification and extension of the Input-Output (I-O) model's transaction table and its processing sectors to include final demand sectors, final payment sectors, government and foreign sectors. The social accounting matrix concept, while considerably more complicated and involved, allows the figures in the input-output to correspond to an income and product accounting system (e.g., national income and product accounts) and thereby conforms to a general equilibrium model concept.

Thorbecke (2000) states that SAMs are a comprehensive, disaggregated, consistent and complete data system that captures the interdependence that exists within a socio-economic system. Thus SAMs can be used as the basis for multiplier analysis to explore the impact of exogenous changes in such variables as exports, certain categories of government expenditures, and investment on the whole interdependent socio-economic system, e.g. the resulting structure of production, factorial and household income distributions. Alternatively, SAM can also be used in the building and calibration of various applied general equilibrium models.

The development of a SAM proceeds together with the development of a planning model that uses the SAM data. In the twentieth century, social accounting modelling has been heavily shaped by the works by Kuznets on national income accounts and by Leontief on input-output matrices (Kehoe 1996). The form of SAMs as they are used today originated from the work by Meade and Stone (Meade and Stone 1941), who developed the first set of double entry national income accounts in a logical and complete form (meant to provide data required in the implementation of Keynes's proposal (Keynes 1940) for funding Britain during the second world war).

Kehoe (1996) argues that the relationships between entries in a SAM has been utilised as economic models in and of themselves. In addition, SAMs have also been largely utilised as the database for constructing computable general equilibrium models. Numerical modelling of general equilibrium was pioneered by Johansen (1960), using a 19 production sectors model calibrated to 1950 Norwegian economy data to identify the sources of economic growth in Norway over the period 1948-1953. Harberger (1962) followed with a two production sector model (corporate and non-corporate) calibrated to US data from 1950s to analyse the effects of the US corporate income tax.

Over the years, CGE models have been applied to many countries in various fields of analysis, including inequality. For instance, Gilbert et al.

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(2000) designed a dynamic CGE model to analyse the APEC food system and its effects on the developing economies of APEC and to capture agricultural reform effects on regional welfare and agricultural incomes. To investigate the effects of some policies regarding supply, demand and external trade on poverty alleviation, income distribution, price stability, economic growth and government finances, Yao and Liu (2000) designed a CGE model of the Philippines which described a multiregional, multimarket and multiagent agrarian economy. A multiperiod CGE model focussing on agriculture and income distribution has been designed by Storm (1999) in his efforts to analyse the influences of internal and external shocks under varying degrees of trade openness on economic growth, income distribution and food security of Indian economy.

There have also been some specially designed CGE models with particular reference to the Indonesian economy, such as INDOCEEM, WAYANG, and INDORANI. These models are mostly based on ORANI-G, a generic model designed to suit teaching purposes and to serve as an initial model to construct new models. INDOCEEM is an application of the Indonesian CGE model analysing energy-related issues. WAYANG was closely based on ORANI-G with additional treatment of agricultural technology, multiple households, and a small budgetary extension (Wittwer 1999). INDORANI was constructed by Abimanyu as a single country model, similar to WAYANG but with more detailed sectors (Centre of Policy Studies 2002).

Besides these ORANI-G based models, there have been a number of other Indonesian CGE models. Abbink et al. (1995) developed a simple static CGE of the Indonesian economy using a SAM as a database to investigate productivity. Ezaki (1988) utilises a static CGE model to study oil price changes and structural adjustment policies in Indonesia. Lin (1996) analyses the Indonesian log and plywood industries. Rodrigo and Thorbecke (1997) developed a CGE model of Indonesia to analyse the growth and fiscal implications of externalities determined by export growth and capital equipment imports. Strutt (1988) using Indonesia as a case study, investigates the influences of economic growth and trade policy on the environment. Anderson and Strutt (1998) modified the GTAP model to project the world economy to 2010 and 2020, and analyse the effects of trade liberalisations on Indonesia.

Although both SAM and CGE analytical methods have been largely used in various aspects of different regions, no models that apply to the economy of South Kalimantan have yet been designed.

4.4   The Structure of a SAM

SAM is a matrix or square tableau of single entry bookkeeping with a series of incoming and outgoing accounts or income and expenditure, which should always balance (Reinert and Roland-Host 1997). Assuming an economy has four main-accounts namely factors, sectors, institutions,

and the rest of the economy, a SAM can model transactions within the economy as described in Figure 4.1.

Figure 4.1   Transaction Flows among SAM Accounts
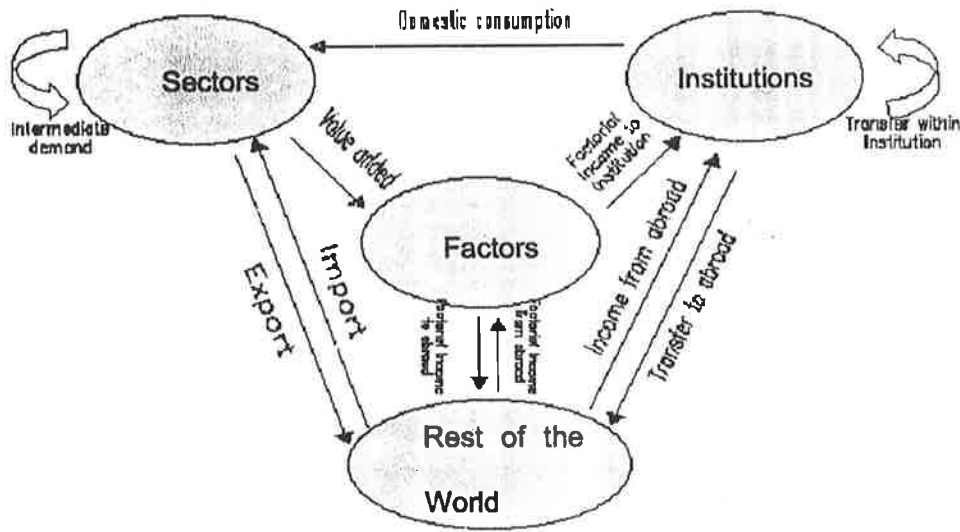
The production processes of various economic sectors use intermediate inputs from within the sectors. Some amount of output is used for the institution's domestic consumption, while the other is exported to the rest of the world. These production processes create value-added for factors being used in the processes. The value-added together with factorial income received by factors from abroad, are then allocated to institutions as the factor owners, including the government, corporations, and various households. The factors also allocate some income abroad. Besides receiving income from factors, institutions can also earn income from the rest of the world. In addition, there are transfers among institutions. The

institutions spend their income for domestic consumption of sectoral outputs, as well as have some transfers to the rest of the world.

In the SAM model construction, the choice of endogenous and exogenous accounts shape the structure of the model. The choice is based normally on the purpose of analysis (Pyatt and Round 1985a, Roberts 1992). In this research, endogenous accounts consist of sectors, factors, and institutions (corporations and various households). Exogenous accounts include government, indirect taxes, subsidy, capital, and other regions. Endogenous accounts are determined within the SAM model, whereas exogenous accounts are not. Factors comprise all factors being used for the production process within the economy, including labour, land and capital. Categorized sectors represent all production activities in the economy including agriculture, industries, and services. Institutions are the parts of the economy, such as various households and corporation, which own the production factors. The basic form of a SAM can be illustrated as Table 4.1 below.

Table 4.1   A Basic Construction of SAM

Receipts	Expenditure				Total
	Endogenous			Exogenous	
	Factor	Sector	Institution	Sum of other Accounts	
	1	2	3	4	5
1	0	T_{12}	0	X_1	Y_1
2	0	T_{22}	T_{23}	X_2	Y_2
3	T_{31}	0	T_{33}	X_3	Y_3
4	T_{41}	T_{42}	T_{43}	X_4	Y_4
5	Y_1'	Y_2'	Y_3'	Y_4'	

The notation of T_{ij} represents the transaction received by the account i as the expenditure of the account j. The notion of Y_i represents total receipts for account i, and Y_j' represents total expenditure of account j. Every cell as the intersection between row and column has its own meaning, except the cells represented by 0, which are no transactions. The definitions are as follows:

T_{12} = Value added payments to factors

T_{22} = Intermediate demand

T_{23} = Domestic consumption by institutions

T_{31} = Allocation of factorial income to institutions

T_{33} = Transfer between institutions

T_{41} = Allocation of factorial income to exogenous accounts

T_{42} = Sectors' expenditure for exogenous accounts

T_{43} = Institutions' expenditure for exogenous accounts

X_1 = Net factor income received from exogenous accounts

X_2 = Net sector Income received from exogenous accounts

X_3 = Transfer from exogenous accounts to institutions

X_4 = Transfer within exogenous accounts

Interrelation between the whole cells of a SAM can be described as follows:

(4.1.): $\quad 0 \quad + \quad T_{12} \quad + \quad 0 \quad + \quad X_1 \quad = \quad Y_1$

(4.2.): $\quad 0 \quad + \quad T_{22} \quad + \quad T_{23} \quad + \quad X_2 \quad = \quad Y_2$

(4.3.): $\quad T_{31} \quad + \quad 0 \quad + \quad T_{33} \quad + \quad X_3 \quad = \quad Y_3$

(4.4.): $\quad T_{41} \quad + \quad T_{42} \quad + \quad T_{43} \quad + \quad X_4 \quad = \quad Y_4$

Incomes must be the same as expenditure, therefore:

(4.5.): $\quad Y_i \quad = \quad Y_j$

These equations can be expressed in matrix form as well. First, A is defined as an average expenditure propensity matrix, and It is obtained from each accounts (T_{ij}) divided by its respective column sum (Y_j):

(4.6.): $\quad A_{ij} \quad = \quad T_{ij} / Y_j$

The average expenditure propensity of endogenous accounts are grouped into An,

(4.7.): $\quad An = \begin{bmatrix} 0 & A_{12} & 0 \\ 0 & A_{22} & A_{23} \\ A_{31} & 0 & A_{33} \end{bmatrix}$

and the average expenditure propensity of exogenous accounts are defined as A_x, where:

(4.8.): $\quad A_x \quad = \quad [A_{41} \quad A_{42} \quad A_{43}]$

In addition, the expenditure of exogenous accounts (X_i) are divided into two categories: expenditure of exogenous accounts for endogenous accounts (X_n), and expenditure of exogenous accounts for exogenous accounts (X_x), where:

(4.9.): $\quad Xn = \begin{bmatrix} X1 \\ X2 \\ X3 \end{bmatrix}$ and

(4.10.): $\quad X_x = [X_4]$

Income of endogenous accounts are defined as Y_n, while income of exogenous accounts are Y_x, where:

(4.11): $\quad Yn = \begin{bmatrix} Y_1 \\ Y_2 \\ Y_3 \end{bmatrix}$ and $Y_x = [Y_4]$

In matrix form those equations can simply be written as:

(4.12.): $\quad Y_n \quad = \quad A_n Y_n + \quad X_n$

Grouping Y_n in one side will give:

(4.13.): $\quad Y_n \quad = \quad (1-A_n)^{-1} X_n$

These equations are for the endogenous accounts. The equations for the exogenous accounts can be formulated as follows:

(4.14.): $\quad Y_x \quad = \quad A_x Y_n + \quad X_x$

This equation can also be expressed as:

(4.15.): $\quad Y_x \quad = \quad A_x \{(1-A_n)^{-1} X_n\} + X_x$

The size of an actual SAM model depends on how the basic accounts (i.e. factors, sectors, institutions, and exogenous accounts) are separated, with the separation related strongly to the purposes of analysis (Pyatt and Round 1985b, Roberts 1992, and Thorbecke 2000) as well as the data availability (King 1985). If the purpose of analysis is to investigate problems related to income distribution, the institution accounts, especially households need to be the focus. The households are to be split down into a number of household types to represent the socio economic characteristics of the economy. Likewise, when the purpose is to analyse the linkages among production sectors. A more detailed sectoral disaggregation is certainly needed.

4.5   SAM Based Analyses

SAM as a model of analysis has some advantages. This model can be constructed wide enough to represent the whole economic system of an observed region, while at the same time it has detailed information for the

investigation of a particular sector of the economy. The model possesses a capacity of combining a wide range of data and organizing them in a complete, consistent and compact framework. The model also has the ability to analyse transaction flows between various sectors in the economy while also being able to examine the flow of income and its distribution within various household categories. SAM can be used for issues related to income distribution among households, as well as for issues related to inter-sectoral linkages among various industries within an economy (Thorbecke 2000). Mainly, a SAM has two folds of objectives, one fold is concerned with the organization of information and the other with the provision of a statistical basis for model creation (King 1985).

The use of a SAM as an economy wide planning model can provide a base to compose conclusions. SAMs comprise inter-sectoral flow analyses of production as well as of government, financial and household sectors. It represents the structure of production and also explains the distribution of value-added among production factors and the distribution of income among households (Zarate-Hoyos 2000). The SAM technique can capture the distributional effects of a planned change in the exogenous accounts such as government, capital, and the rest of the world on various socio-economic household groups (Nokkala and Kola 2000). This capacity is important to help understand the income disparity in a region.

SAMs have been applied in various research fields in different countries. In the US, Adelman and Robinson (1986) used SAM for investigating the impacts of various exogenous factors on agriculture, with the focus on the link between agricultural and non- agricultural sectors. Roberts (1992) used SAM to investigate the roles of agriculture in the economic development of the UK's economy. Reininga (2000) constructed a SAM for the Netherlands to examine its consistency and suitability as a database for economic policy analysis. Sanz and Perdiz (2000) applied a SAM and used its multipliers to measure the inequality of different groups of Spanish households. Nokkala and Kola (2000) analysed the effects of the EU structural and agricultural policies on rural areas of different economic structures in Finland, using a SAM.

SAM has also been broadly utilized in developing countries to assess the distributive effects of policies on households (Midmore and Harrison-Mayfield 1996). Pyatt and Round (1985b) documented several examples of SAM models that have been applied to the policy analysis of several countries. More recently, Zarate-Hoyos (2000) used a SAM model to examine aspects of labour migration from Mexico to the US. Bautista and Thomas (2000) made use of SAM multipliers to assess the effects of agricultural growth on income and equity. Malan (2001) discussed the problem of income distribution in South Africa using a SAM. Indeed, SAM analysis has been useful in gathering insights for development strategy

formulation particularly when addressing the issues of growth and distribution (Cohen 1986).

For this research, three types of analyses have been based on the data of the SAM Model. These are snapshot analysis, marginal expenditure propensity analysis and mixed multiplier analysis. The snapshot analysis utilises a particular part of the SAM matrix database relevant to the specific purpose of analysis. For example, an analysis on income distribution focuses on the parts of the SAM matrix, which contains the accounts of factors and households (Sutomo 1990).

The Marginal Expenditure Propensity (MEP) analysis uses the MEP of a SAM. To obtain the MEP matrix, each cell of a SAM matrix is divided by its own column sum, which results in the Average Expenditure Propensity (AEP).

(4.16.): $\qquad AEP_{ij} = A_{ij} = T_{ij} / Y_j$

Then, to transform AEP into MEP, income elasticity effects on the expenditure of various households are taken into account. The household expenditure account (account T_{23} at Table 4.1) is then modified. The income elasticity of demand for a particular commodity of a particular household category (IE) matches the ratio of MEP over AEP of the commodity. Therefore, MEP is calculated by multiplying AEP with income

elasticity. Any other account remains the same as AEP (Sutomo 1991).
In formula:

(4.17.): $MEP_{ij} = AEP_{ij}$ except for MEP_{23}.

Where $MEP_{23} = IE * AEP_{23}$

Using this MEP a great amount of economic structure information can be revealed, including, the distribution pattern of income, input, output, dependency between sectors and dominancy of the rest of the world economy. The complete MEP matrix is provided in Appendix A.

A third SAM based analyses is the mixed multiplier analyses. Three types of multipliers can be derived from a SAM: accounting multiplier, fixed-price multiplier, and mixed multiplier. For all of these multipliers we need first to count average expenditure propensity (AEP). Then to calculate the accounting multiplier, the formula is (Stone 1985):

(4.18): $(1-AEP)^{(-1)}$.

The fixed-price multiplier is counted using this formula (Pyatt and Round 1985a):

(4.19): $(1-MEP)^{(-1)}$.

The last multiplier is a mixed multiplier. The Mixed multiplier formula is (Lewis and Thorbecke 1992 and Rich, et al. 1997)

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(4.20.):

$$\begin{bmatrix} I_1 - C_{nc} & O_1 \\ -R & -I_2 \end{bmatrix}^{-1} \begin{bmatrix} I_1 & Q \\ O_2 & -(I_2 - C_c) \end{bmatrix}$$

Where:

Cnc   Marginal Expenditure Propensity among factors, institutions and sectors with supply unconstrained

Q   Marginal Expenditure Propensity of sectors with supply constrained on factors, institutions and sectors with supply unconstrained

Xnc   Exogenous expenditure on factors, institutions and sectors with supply unconstrained

Ync   Total income of factors and institutions and total output of sectors with supply unconstrained

R   Marginal Expenditure Propensity of factors, institutions and sectors with supply unconstrained on sectors with supply constrained

Cc   Marginal Expenditure Propensity among sectors with supply constrained

Xc   Exogenous expenditure on sectors with supply constrained

Yc   Total output of sectors with supply constrained

I1   Identity Matrix (same order as Cnc)

I2   Identity Matrix (same order as Cc)

O1   Zero Matrix (same order as Q)

O2   Zero Matrix (same order as R)

For the purposes of this research, the mixed multiplier is chosen (The complete mixed multiplier matrix is provided in Appendix B). This choice is

based on the need for fewer assumptions compared to the others. As in Leontief's input-output analysis, it is assumed that the production structure is fixed. For the accounting multiplier, there are two more assumptions are imposed. Firstly, income elasticity is assumed to be unity, and therefore the income effects on expenditures are eliminated. Secondly, supply of all sectors in the economy is unlimited (Bautista 2000). In the fixed price multiplier, the income elasticity information is involved in the model and therefore the income assumption is released. For the mixed multiplier analysis, not only is the income elasticity assumption released, but also the limited supply assumption. This is to accommodate the fact that: not every sector in an economy has unlimited supplies of resources. Usually agricultural sectors are considered to have a limited supply (Lewis and Thorbecke 1992, Pyatt and Round 1985b, Rich, et al. 1997, Stone 1985, and Townsend and McDonal 1997).

The standard mixed multiplier formula is suitable to investigate backward linkages in the economy, because the calculation of this formula is demand driven and based on the average expenditure propensities, where each cell is divided by its column sum. To calculate forward linkages, the mixed multiplier formula is modified, where each cell is divided by its row sum. This is adapted from the Ghosh inverse model, originating from Ghosh (1958). Although the formula is criticized for some of its drawbacks (Gruver 1989 and Oosterhaven 1988, 1989), Dietzenbacher (1997, 2002)

argues that the Ghosh inverse model is reliable as a price model. The complete transformed mixed multiplier matrix is provided in Appendix C.

4.6 Data and Methods Used in the SAM Development

The amount and details of data needed to develop a SAM for South Kalimantan corresponds to the degree of aggregation of the Province's economy that is used. In general, the types of data needed involve the structure of income and expenditure of the 19 accounts of the South Kalimantan Province economy (including factors, sectors, institutions, and some exogenous accounts; for complete accounts, see Table 4.2).

Factors are disaggregated into two SAM accounts, labour and capital. Sectors are divided into four main categories, industry, service, agroindustry, and agriculture. These categories are based on the more detailed categories in 'Regional Income of South Kalimantan Province 1999'. For agroindustry data, a survey was specially designed within this research to provide the base for aggregation process. The survey found out about how many types of agroindustry firms existed in South Kalimantan Province economy; this forms one account in the SAM database.

Institutions are detailed into two major categories, households and corporations. The households are divided into seven income levels,

ranging from 'landless farmers' to 'very high-income non-farmer' households. For the purposes of analysis in this research, the exogenous accounts are defined as government, indirect taxes, subsidy, capital, and outer regions of South Kalimantan Province.

Table 4.2   Accounts of South Kalimantan Province Economy

Code	Accounts
1	Labour
2	Capital
3	Industry
4	Service
5	Agroindustry
6	Land-less Farmer
7	Small land-owner Farmer
8	Large land-owner Farmer
9	Low Income Non Farmer
10	Middle Income Non Farmer
11	High Income Non Farmer
12	Very High Income Non Farmer
13	Corporation
14	Agriculture
15	Government
16	Indirect Taxes
17	Subsidy
18	Capital
19	Outer Regions

For the collection of the specified data as above, three particular surveys have been carried out in the South Kalimantan Province of Indonesia, including a general survey, an agroindustrial survey, and an household survey. The general survey collects general data regarding the economic activities of South Kalimantan. Data includes the types and numbers of industries, gross domestic regional product of the regions, total output and input of industries, the composition of final demand and value added of each industry, and also government income and expenditure. The general

survey has also gathered special data regarding agroindustries, particularly about types, firms, output, profit, value-added, and so forth. This survey was the base for the second one, the agroindustrial survey.

The data was then arranged and sorted so the information about types and number of agroindustries in South Kalimantan Province became available. There were 17,881 agroindustries with 29 types of activities listed through this survey. There have been various sources of data in this survey. These include South Kalimantan Province in Numbers 1999, Regional Income of South Kalimantan Province 1999, Production Statistics of South Kalimantan Province 1999, annual reports of the government institutions of South Kalimantan Province and reports of previous relevant research.

The agroindustrial survey was held primarily to collect detailed information on agroindustries, particularly the structure of their receipts and expenditures. In this survey, three firms were chosen from every type of agroindustry. In total there were 87 agroindustries being investigated for their receipt and expenditure structures. The data are then used as indicators in developing a SAM to describe the structures of income and expenditure of agroindustries.

The last part of the survey is the household survey. This survey provides indicators for households that are needed to develop a Social Accounting

Matrix model, and determine institutional transactions within the model. This survey involved quite a large amount of samples, which collected primary data on 700 respondents chosen from each district (*kabupaten*), proportional to their population, to represent the type of households in the districts. The complete distribution of samples can be seen as in Table 4.3.

Table 4.3   The Distribution of Selected Household Samples

No	Districts	Population	Sample
1	Batola	273,234	62
2	Banjar	516,936	118
3	Tanah Laut	247,065	51
4	Tapin	139,314	35
5	Hulu Sungai Selatan	196,438	49
6	Hulu Sungai Tengah	233,275	57
7	Hulu Sungai Utara	293,781	72
8	Tabalong	173,259	42
9	Kotabaru	431,648	87
10	Banjarmasin	558,550	127
	Total	3,063,500	700

Data from the three specially designed surveys were processed to generate a SAM. The complete matrix, a 19x19 of SAM of South Kalimantan Province is as depicted in Table 4.4.

Table 4.4   SAM 1999 of South Kalimantan Province (19 accounts, Million Rupiahs)

Accounts	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	TOTAL
Labour	0	0	1,687,041	336,933	9,049	0	0	0	0	0	0	0	0	778,058	0	0	0	0	131,049	2,942,130
Capital	0	0	6,892,701	1,070,771	102,580	0	0	0	0	0	0	0	0	3,901,042	0	0	0	0	149,100	12,116,194
Industry	0	0	3,907,839	221,240	12,882	177,770	252,142	538,836	838,572	482,146	620,672	381,726	0	1,018,049	301,544	0	85,695	3,204,156	6,457,890	18,501,159
Service	0	0	342,314	19,380	1,731	19,725	29,186	60,232	93,735	53,893	68,379	42,868	0	89,174	211,097	0	0	280,671	611,835	1,924,018
Agroindustry	0	0	16,094	805	62	1,289	1,852	3,964	6,164	3,547	4,562	2,803	0	4,189	514	0	0	5,695	89,466	141,107
Land-less Farmer	159,082	61,437	0	0	0	868	1,244	2,660	4,139	2,381	3,064	1,885	13,861	0	77,199	0	0	0	118,947	446,767
Small land-owner Farmer	227,339	195,864	0	0	0	1,249	1,778	3,805	5,919	3,406	4,386	2,693	19,808	0	396,133	0	0	0	236,189	1,098,570
Large land-owner Farmer	485,835	262,890	0	0	0	2,660	3,800	8,118	12,641	7,268	9,358	5,754	42,330	0	846,558	0	0	0	292,452	1,979,663
Low Income Non Farmer	806,002	603,680	0	0	0	4,139	5,914	12,641	19,674	11,311	14,562	8,957	65,875	0	986,936	0	0	0	422,427	2,962,119
Middle Income Non Farmer	650,782	428,267	0	0	0	2,381	3,402	7,268	11,311	6,505	8,372	5,148	37,876	0	757,487	0	0	0	479,532	2,398,331
High Income Non Farmer	559,619	287,870	0	0	0	3,064	4,379	9,358	14,562	8,372	10,777	6,629	48,760	0	975,123	0	0	0	671,777	2,600,290
Very High Income Non Farmer	53,471	1,066,703	0	0	0	1,885	2,693	5,754	8,957	5,148	6,629	4,076	29,988	0	599,721	0	0	0	122,554	1,907,579
Corporation	0	3,965,418	0	0	0	0	0	0	0	0	0	0	15,642	0	0	0	0	0	857,262	4,838,321
Agricultura	0	0	1,136,012	64,314	3,714	159,476	222,763	368,025	821,269	315,360	404,402	563,667	0	295,953	3,631	0	0	694,950	1,676,190	6,729,725
Government	0	4,115,561	0	0	0	9,313	13,306	28,438	44,256	25,446	32,758	20,146	987,158	0	197,472	401,346	491,896	0	158,655	6,515,753
Indirect Taxes	0	0	310,122	43,244	6,122	0	0	0	0	0	0	0	0	41,857	0	0	0	0	0	401,346
Subsidy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85,695	0	0	0	491,896	577,591
Capital	0	0	0	0	0	0	52,183	111,462	173,460	599,732	428,390	278,968	2,609,361	0	244,569	0	0	0	0	4,498,124
Outer Regions	0	1,128,503	4,209,035	167,231	4,968	62,949	504,927	819,103	907,460	873,817	982,980	582,460	967,662	601,403	842,074	0	0	312,652	0	12,967,220
TOTAL	2,942,130	12,116,194	18,501,159	1,924,018	141,107	446,767	1,098,570	1,979,663	2,962,119	2,398,331	2,600,290	1,907,579	4,838,321	6,729,725	6,515,753	401,346	577,591	4,498,124	12,967,220	85,546,008

4.7 Conclusion

For the needs of a particular model that is wide enough to represent the whole economic system of an observed region, while also is deep enough to enable detail investigation of a particular sector of the economy, a SAM model has been chosen. This model has the capacity of combining a wide range of data and organizing them in a complete, consistent and compact framework. The model also have the ability to analyse transaction flow between various sectors in the economy while also it is able to examine the flow of income and its distribution within various household categories.

There are many analyses can be drawn from a SAM. In this research, mainly there are three types of SAM based analysis involved, including analyses based on snapshot of SAM matrices, marginal expenditure propensity analysis and mixed multiplier analysis.

5 The Description of the South Kalimantan Province Using Major Accounts of SAM

5.1 Introduction

The South Kalimantan Province's 1999 SAM is made in the form of a 19 x 19 matrix. All values in the SAM use million rupiahs as units. The SAM uses 1999 as the base year. Despite the fact that some data are available up to the year 2000, most publications only provided 1999 data as the most recent information. The 19 accounts used in the SAM are grouped into four groups: factors, sectors, institutions and exogenous accounts.

5.2 Factors

Factors are divided into two accounts, labour and capital. As described in (Table 4.1), the sources of factor income are value-added payment to factors (T_{12}) and net factor income received from exogenous account (X_1), in this case the outer regions account. The accumulation reaches 15,058,324 million rupiahs. Value added contributes 98.1 percent, while the income received from abroad is only about 1.9 percent. The definition of abroad means out of Indonesia and 'out of the South Kalimantan Province'. From the total amount, about 19.5 percent income is for labour and the rest is capital (Table 5.1).

Table 5.1 Factorial Income of the South Kalimantan Province 1999 (Million rupiahs)

| Factors | Income | | Total | Percentage |
	Value added	Abroad Income		
Labour	2,811,081	131,049	2,942,130	19.5
Capital	11,967,094	149,100	12,116,194	80.5
Total	14,778,175	280,149	15,058,324	100.0
Percentage	98.1	1.9	100.0	

The South Kalimantan Province economy is biased toward capital factors such as land and capital, because the production process in the economy generates more returns to these two factors and to those households, who own these factors. This affects income distribution in the economy, depending on resource endowment structures among various households in the South Kalimantan Province.

Table 5.2 Factor's Expenditure of the South Kalimantan Province Economy 1999 (Million rupiahs)

| Expenditure | Factors | | Total | Percentage |
	Labour	Capital		
Households	2,942,130	2,906,712	5,848,843	38.8
Corporation		3,965,418	3,965,418	26.3
Government		4,115,561	4,115,561	27.3
Outer Regions		1,128,503	1,128,503	7.5
Total	2,942,130	12,116,194	15,058,324	100.0
Percentage	19.5	80.5	100.0	

There are two transactions for factor expenditure, allocation of factorial income to institutions (T_{31}) and allocation of factorial income to exogenous accounts (T_{41}). Factor income proportions are: households (38.8 percent), government (27.3 percent), and corporation (26.3 percent). The rest (7.5

percent) goes to other regions out of the South Kalimantan Province (see Table 5.2 for detail).

These data indicate that corporations play an important role in the economy, and how corporations transfer income to households helps determines income distribution in the South Kalimantan Province.

5.3 Sectors

The sectors in the1999 SAM consist of four groups: manufactures, service, agroindustries, and agriculture. The sources of income for the sectors are intermediate demands among sectors (T_{12}), domestic consumption by institutions (T_{23}) and some income received from exogenous accounts (X_2), including government expenditure, subsidy, investment, and income from exporting products to other regions.

Total sectoral income is 27,296,010 million rupiahs. Some 32 percent is derived from the other regions, which represents sectoral earning from exports, either in trade with other provinces or overseas trading. Intermediate demand and household (domestic) consumption are 26.1 percent and 24.0 percent respectively. Investment has a 15.3 percent share, and both government and subsidy have small contributions, 1.9 percent and 0.3 percent (see Table 5.3).

Table 5.3 Sectoral Income of the South Kalimantan Province 1999 (Million rupiahs)

Sectors	Income						Total	Percentage
	Intermediate Demand	Domestic Consumption	Government Expenditure	Subsidy	Investment	Export		
Manufactures	5,160,010	3,291,864	301,544	85,695	3,204,156	6,457,890	18,501,159	67.8
Services	452,599	367,817	211,097	0	280,671	611,835	1,924,018	7.1
Agroindustries	21,251	24,181	514	0	5,695	89,466	141,107	0.5
Agriculture	1,499,994	2,854,961	3,631	0	694,950	1,676,190	6,729,725	24.7
Total	7,133,853	6,538,823	516,785	85,695	4,185,472	8,835,381	27,296,010	100.0
Percentage	26.1	24.0	1.9	0.3	15.3	32.4	100.0	

These figures indicate that the production process in South Kalimantan is sensitive to the demand from outer regions, final demand from households and intermediate demand from industry. Government expenditure does not have a significant effect, as its consumption comprises a small share of total output. Table (5.3) also implies that in South Kalimantan's economy, manufactures are more dominant than other sectors including agriculture, services, and agroindustry. Industry's share on sectoral income is 67.8 percent, followed by agriculture (24.7 percent), services (7.1 percent), and agroindustry (less than 1 percent).

Sectors spend their income through three main transactions: transactions to factors as value-added (T_{12}); transactions within its own group as intermediate demand (T_{22}); and transactions for exogenous accounts (T_{42}) i.e. payments for indirect taxes and payments for import. More than half (54.1 percent) of sectoral expenditure is received by factors as value-added. Intermediate demand and import are reasonably significant in South Kalimantan's economy, as their shares stand at 26.1 percent and

18.3 percent respectively. The payment from sectors for indirect tax accounts is very small compared to the expenditures for other accounts, only 1.5 percent (Table 5.4).

Table 5.4   Sectoral Expenditure of the South Kalimantan Province 1999 (Million rupiahs)

| Expenditure | Sectors | | | | | |
	Manufac	Services	Agroin	Agriculture	Total	Percentage
Factor Value Added	8,579,743	1,407,703	111,629	4,679,100	14,778,175	54.1
Intermediate Demand	5,402,259	305,839	18,389	1,407,365	7,133,853	26.1
Indirect Taxes	310,122	43,244	6,122	41,857	401,346	1.5
Import	4,209,035	167,231	4,968	601,403	4,982,636	18.3
Total	18,501,159	1,924,018	141,107	6,729,725	27,296,010	100.0
Percentage	67.8	7.1	0.5	24.7	100.0	

5.4   Institutions

The institutions in the 1999 SAM are divided into eight accounts, consisting of seven different types of households and one corporation. The institutions have three transaction matrices as sources of income: the allocation of factorial income to institutions (T_{31}); the transfers between institutions (T_{33}); and the transfer from the exogenous accounts to institutions (X_3) (i.e. from government and from outer regions).

As seen in Table (5.5), the allocation of factorial income is the major source of an institution's income. It contributes 53.8 percent of the total. This is followed by transfers from government and outer regions, whose shares respectively are 25.5 percent and 17.6 percent. Transfers from

corporations and among various households have only a small share 1.5 percent and 1.7 percent. The data in Table (5.5) shows that corporations get more than 26 percent of the institution's income. The rest is distributed among seven different household types.

Table 5.5   Institution's Income of the South Kalimantan Province Economy 1999 (Million rupiahs)

Institutions	Income					Total	Percentage
	Factorial	House holds	Corpo ration	Govern ment	Transfer Outer Regions		
Land-less Farmer	220,520	16,241	13,861	77,199	118,947	446,767	2.5
Small land-owner Farmer	423,203	23,236	19,808	396,133	236,189	1,098,570	6.0
Large land-owner Farmer	748,725	49,598	42,330	846,558	292,452	1,979,663	10.9
Unskilled Labour Non Farmer	1,409,683	77,198	65,875	986,936	422,427	2,962,119	16.3
Low Income Non Farmer	1,079,049	44,387	37,876	757,487	479,532	2,398,331	13.2
Middle Income Non Farmer	847,489	57,141	48,760	975,123	671,777	2,600,290	14.3
High Income Non Farmer	1,120,174	35,142	29,988	599,721	122,554	1,907,579	10.5
Corporation	3,965,418	0	15,642	0	857,262	4,838,321	26.5
Total	9,314,260	302,943	274,141	4,639,157	3,201,139	18,231,640	100.0
Percentage	53.8	1.7	1.5	25.5	18.6	100.0	

Institutions spend their income through three transaction matrices: transactions for domestic consumption (T_{23}); transactions in the form of transfers among its own accounts (T_{33}) including transfer to households and corporation; and transactions for exogenous accounts (T_{43}). The transactions for exogenous accounts include transactions for the government in the forms of payment for direct taxes and other transfers, transactions for capital (saving), and transfers being sent to other regions, such as transfer to family living out of South Kalimantan.

Table (5.6) shows that the highest expenditure for an institution is domestic consumption (35.9 percent), followed by transfers to outer regions (31.3 percent), and savings (23.3 percent). These data reveal that in South Kalimantan's economy, household consumption is crucial. Policies that affect consumption patterns will significantly affect the welfare level of households, and in turn affect income distribution. The structure of savings among various types of households should also be considered carefully, as total household savings reach 23.3 percent. Households with high saving rates have a better chance to improve the quality and quantity of their resources and assets, as well as more opportunities to develop profitable businesses.

Table 5.6   Institution's Expenditure of South Kalimantan's Economy 1999 (Million rupiahs)

| | Institutions | | | | | | | | | |
| | Households | | | | | | | | | |
Expenditure	Land-less Farmer	Small land-owner Farmer	Large land-owner Farmer	Unskilled Labour Non Farmer	Low Income Non Farmer	Middle Income Non Farmer	High Income Non Farmer	Corporation	Total	Percentage
Domestic Consumption	358,260	504,943	971,057	1,759,740	854,946	1,099,014	990,863	0	6,538,823	35.9
Transfer to Households	16,246	23,210	49,603	77,203	44,391	57,148	35,142	258,499	561,442	3.1
Transfer to Corporation								15642	15,642	0.1
Payment to Government	9,313	13,306	28,438	44,256	25,446	32,758	20,146	987,158	1,160,822	6.4
Saving	0	52,183	111,462	173,460	599,732	428,390	278,968	2,609,361	4,253,556	23.3
Transfer to Outer Region	62,949	504,927	819,103	907,460	873,817	982,980	582,460	967,662	5,701,355	31.3
Total	446,767	1,098,570	1,979,663	2,962,119	2,398,331	2,600,290	1,907,579	4,822,679	18,215,998	100.0
Percentage	2.5	6.0	10.9	16.3	13.2	14.3	10.5	26.5	100.0	

5.5 Exogenous Accounts

In the 1999 SAM, exogenous accounts are composed of five accounts: government, indirect taxes, subsidy, capital and outer regions. The exogenous accounts have four matrix transactions as the sources of their income. These include income received from factors (T_{41}), received from sectors (T_{42}), received from institutions (T_{43}), and transfer within its own accounts (X_4).

For the T_{41} transaction, income is received only from capital, which is received by the government as the returns to factors utilised in the production process, and received by outer regions for the capital factor, which comes from out of South Kalimantan. For the T_{42} transaction, there are two members of exogenous accounts collecting income from sectors. One is the indirect taxes account, which collects the payment from the sectors of production for taxes being imposed by the government on their products. The other is the outer region account, which gains income from import activities by sectors. The T_{43} transaction is the same as the expenditure of institutions for exogenous accounts. This includes transactions for income received by the government in the forms of payment for direct taxes and other transfers, transactions received by capital i.e. saving, and transfers received by other regions, such as transfers to family living out of South Kalimantan Province.

Transactions within the exogenous accounts generate income through several transfers among the accounts, i.e. government, indirect taxes, subsidy, capital, and outer region accounts. The government receives income from four sources; transfers from the government, income from indirect taxes, income from subsidy, and transfers from outer regions. Subsidies have two sources of income, the government and outer regions. Capital only receives income in the form of government saving. Finally, the outer regions account receives transfers from the government and some investment made to the outer region economy.

Table 5.7 depicts total income received by exogenous accounts according to the sources of income. Table 5.7 demonstrates that most exogenous account income comes from institutions. This account constitutes 44.5 percent of the total exogenous account. These are followed by the significant sources of sectors and factor (more than 20 percent), and government (5.5 percent). Among the group members of the exogenous accounts receiving income, the outer region account being 52.0 percent has the highest share. The government account stands in second place with 26.1 percent, and capital in third place with 18.0 percent

Table 5.7   Income of Exogenous Accounts of South Kalimantan's Economy 1999 (Million rupiahs)

Exogenous Accounts	Factors	Sectors	Institutions	Government	Indirect Taxes	Subsidy	Capital	Outer Regions	Total	percentage
Government	4,115,561	0	1,160,822	187,472	401,346	491,896	0	158,656	6,515,753	26.1
Indirect Taxes	0	401,346	0	0	0	0	0	0	401,346	1.6
Subsidy	0	0	0	85,695	0	0	0	491,896	577,591	2.3
Capital	0	0	4,253,556	244,569	0	0	0	0	4,498,124	18.0
Outer Regions	1,128,503	4,982,636	5,701,355	842,074	0	0	312,652	0	12,967,220	52.0
Total	5,244,064	5,383,982	11,115,733	1,359,810	401,346	491,896	312,652	650,552	24,960,034	100.0
Percentage	21.0	21.6	44.5	5.5	1.6	2.0	1.3	2.6	100.0	

For the expenditure of exogenous accounts, there are four transaction matrices: payments to factors (X_1); payments to sectors (X_2); payments to institutions (X_3); and transfers within its own matrix (X_4). The first three matrices are discussed in the previous sections. The X_4 transaction matrices represent the expenditure made by the member of the exogenous accounts. Government expenditures are in the forms of transfers to government itself, subsidies, government saving and transfers to outer regions. Indirect taxes flow to government. So do subsidies. Capital is reinvested for investment in outer regions. Transfers from outer regions flow directly to government and are to be given as subsidies for South Kalimantan.

Payment to sectors has the highest share in the exogenous account expenditure. This stands at 54.6 percent. Then, payment to institutions shares 31.4 percent. Transfers to government and transfers within exogenous accounts follow with shares about 4 percent each (Table 5.8).

Table 5.8   Expenditure of Exogenous Accounts of South Kalimantan's Economy 1999 (Million rupiahs)

Expenditure	Exogenous Accounts						Percentage
	Government	Indirect Taxes	Subsidy	Capital	Outer Regions	Total	
Factors	0	0	0	0	280,149	280,149	1.1
Sectors	516,785	0	85,695	4,185,472	8,835,381	13,623,333	54.6
Institutions	4,639,157	0	0	0	3,201,139	7,840,296	31.4
Government	187,472	401,346	491,896	0	158,656	1,239,370	5.0
Indirect Taxes	0	0	0	0	0	0	0.0
Subsidy	85,695	0	0	0	491,896	577,591	2.3
Capital	244,569	0	0	0	0	244,569	1.0
Outer Regions	842,074	0	0	312,652	0	1,154,726	4.6
Total	6,515,753	401,346	577,591	4,498,124	12.967,220	24,960,034	100.0
Percentage	26.1	1.6	2.3	18.0	52.0	100.0	

5.6   Conclusion

Considering research purposes as well as data availability, 1999 has been selected   to be the base year of the SAM of South Kalimantan Province. The entire economic activity of South Kalimantan Province has been grouped into four major groups i.e. factors, sectors, institutions and exogenous accounts. In total, the 1999 SAM has 19 accounts: 2 accounts are included in factors, 4 accounts in sectors, 8 accounts in institutions, and 5 accounts in exogenous accounts.

Factor income consisting value-added payment to factors and net factor income received from the outer regions, reaches 15,058,324 million rupiahs. Value added contributes 98.1 percent; while the income received

from abroad is only about 1.9 percent. Factor income proportions are: households (38.8 percent), government (27.3 percent), corporation (26.3 percent) and the rest (7.5 percent) goes to other regions.

Total sectoral income is 27,296,010 million rupiahs. Some 32 percent is derived from exports. Intermediate demand and household (domestic) consumption are 26.1 percent and 24.0 percent respectively. Investment has a 15.3 percent share, and both government and subsidy have small contributions, 1.9 percent and 0.3 percent. More than half (54.1 percent) of sectoral expenditure is distributed as value-added. Intermediate demand and import share 26.1 percent and 18.3 percent respectively. The payment from sectors for indirect tax accounts is very small, only 1.5 percent.

The allocation of factorial income is the major source of an institution's income (53.8 percent of the total). Transfers from government and outer regions respectively are 25.5 percent and 18.6 percent. Transfers from corporations and among various households have only a small share 1.5 percent and 1.7 percent. Corporations get more than 26 percent of the institution's income. The rest is distributed among seven different household types. The highest institution expenditure is domestic consumption (35.9 percent), followed by transfers to outer regions (31.3 percent), and savings (23.3 percent).

Exogenous account income comes from institutions (44.5 percent), from sectors and factor (more than 20 percent each), and government (5.5 percent). Among the exogenous accounts, the outer region has the highest share (52 percent). The government account stands in second place with 26.1 percent, and capital in third place with 18.0 percent. Payment to sectors has the highest share in the exogenous account expenditure (54.6 percent). Then, payment to institutions shares 31.4 percent. Transfers to government and transfers within exogenous accounts follow with shares about 4 percent each.

6 Using the SAM to Analyse the Roles of Agroindustries in Regional Economic Development

6.1 Introduction

Using the SAM and its mixed multiplier analysis, the roles of agroindustry in the South Kalimantan Province are investigated. This investigation includes the roles of agroindustry in value-added generation, its linkages and its tradability in terms of export import structure. The output, value-added and productivity are discussed in section 6.2, the linkages of agroindustry both backward and forward are discussed in section 6.3. In section 6.4 agroindustry's tradability is elaborated.

6.2 The Output, Value Added and Productivity of Agroindustry in South Kalimantan Province Economy

The production of goods and services in the four main economic sectors of South Kalimantan generates 27,296,036 million rupiahs of output. Some 54.14 percent of the output is value added, consisting of labour value added (10.30 percent) and capital value added (43.84 percent).

Table 6.1   Total Output, Value Added, Labour, and Capital of Four Main Sectors in South Kalimantan Province Economy

Description	Million Rupiahs	Percentage
Output	27,296,036	100.00
Value Added	14,778,175	54.14
Labour	2,811,081	10.30
Capital	11,967,094	43.84

Among the other sectors in South Kalimantan, agroindustry is less important, as it has the smallest share of output and value added. For each measure, agroindustry has only less than a one percent share. The highest share is for industry (67.78 percent output share and 58.06 percent value added share). Agriculture stands in second place, with a 24.65 percent share of output, and 31.66 percent share of value-added. The output multiplier values also reveal a similar figure. The output multiplier measures the change in output as a result of injection in a particular account in the economy. Industry has the highest output multiplier, though the difference from the other sectors is not too large (Table 6.2). This implies that if output increase is the only consideration, injection on any sector will induce similar effects on output.

Table 6.2 Output, Value Added, Labour, and Capital (in Absolute Values, Shares and Ratios) of Four Main Sectors in South Kalimantan Province Economy

Description	Manufactures	Service	Agroindustry	Agriculture
Absolute Values (million rupiahs)				
Output	18,501,162	1,924,022	141,112	6,729,739
Value Added	8,579,743	1,407,703	111,629	4,679,100
Labour	1,687,041	336,933	9,049	778,058
Capital	6,892,701	1,070,771	102,580	3,901,042
Shares and Ratios				
Share of Output	67.78	7.05	0.52	24.65
Share of Value Added	58.06	9.53	0.76	31.66
Value Added share in Output	46.37	73.16	79.11	69.53
Labour Productivity	10.97	5.71	15.59	8.65
Capital Productivity	2.68	1.80	1.38	1.73
Capital/Labour Ratio	4.09	3.18	11.34	5.01
Capital share in Output	0.37	0.56	0.73	0.58
Total Factor Productivity	9.44	3.94	7.35	5.74
Multiplier				
Output	1.22	1.13	1.10	1.16
Value Added	0.61	0.81	0.85	0.80

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However, agroindustry does have some potential advantages. As seen in Table 6.2, agroindustry is the highest value-added share in its own output, 79.11 percent). Multiplier analysis also confirms this result. Value-added multiplier for agroindustry is the highest (0.85). This means that agroindustry has a strong relative potential to generate value added, compared to other sectors in the economy. Therefore agroindustrial development is suitable for the purpose of value added generation.

In terms of productivity, agroindustry's capital productivity is the lowest 1.38. Nevertheless, its labour productivity is the best among the four sectors. It has 15.59, whereas industry as the most dominant sector in the economy has only 10.97. This implies that agroindustry is strategic sector in the economy, where production activities and value-added generation processes rely more on labour.

Another measure of agroindustry's potential in is Total Factor Productivity (TFP). Sargent and Rodriguez (2001) argue that TFP is more effective and reliable as a measure over the long run of the growth process, whereas labour productivity is more reliable in the short run, when the underlying growth process is uncertain, or when capital stock data are unreliable. Different from labour productivity, which is measured by the ratio of output over labour, TFP measures the net productivity of capital contribution. It involves labour productivity, capital share in output and capital labour ratio, as in the following formula:

(6.1.):   TFP = LP - $\alpha \cdot k$

Where:

LP   = Labour productivity

α = Capital Share in output

k   = Capital labour ratio

Agroindustry has 7.35 for TFP, which is the second highest after industry (9.44). Agriculture is third with 5.74, and service is the lowest (3.94). These numbers highlight the potential of agroindustry as an alternative source of growth. It has the capability to create more value added if its scale is enlarged and its output increases. Agroindustry also has the capacity to boost growth both in the short run and in the long run, as its labour productivity is the highest and its TFP is the second best.

6.3   The Linkages of Agroindustries

The use of linkage as a measure to understand the pattern of economic development and to verify sectoral roles in the pattern has been formalized by Hirschman's (1958) introduction of backward and forward linkages and a formula to 'score' different economic activities. Some researchers called these linkages upstream and downstream (Laursen and Meliciani 1999, Ottaviano and Puga 1997, Venables 1996). Backward linkage effects are related to derived demand, the input provision for

certain activities. Forward linkage effects are related to output utilization, the induced attempts of some activities to use the output. The linkages are referred to as inter-sectoral linkages or technological spill overs or input-output linkages between firms (Grossman and Helpman 1991, Ottaviano and Puga 1997, and Verspagen 1993).

SAM multiplier captures interindustry linkages just like an input-output multiplier does. In addition, the SAM linkages can specify the relationship between and within industry, factors and household. Darden et al. (1998) propose that SAM models can treat household, government and investment variables as endogenous, allowing the identification of linkages between household income and household spending, government revenue and government expenditure, and saving and investment. Townsend and McDonald (1997) highlight one advantage of a SAM compared to an input-output table: it extends analysis beyond the production account involving income distribution, employment and poverty alleviation issues. They use both input-output and SAM multipliers in their report to confirm that input-output tables have an inherent potential bias. SAM multipliers can be much higher, and in some cases up to twice as large as input-output multiplier.

Mixed multipliers derived from SAM in this research exhibit linkages among and within factors, sectors and institutions (households and corporation, as government is treated as exogenous). In general,

backward linkages are better than forward linkages, and this applies to all

sectors in the economy. Backward linkages range from 2.24 to 2.50, while

forward linkages vary between 1.08 and 1.23 (Table 6.3 and Table 6.4).

For the backward linkages, value-added linkages are the area where

agroindustry is strong, it has 0.85. In sectoral linkages, agroindustry is the

lowest with only 1.10. In income linkage agroindustry stands at 0.54, this

is the second place after industry (0.56) (Table 6.3). These figures indicate

that the full circular flow effects of an excgenous change in South

Kalimantan Province's economy result in high linkages if the injection is

applied to agroindustry. Agroindustry has fewer effects in interindustry

linkages compared to other sectors, but it is strong in value-added.

Table 6.3   Backward Linkages in South Kalimantan Province

Description	Manufactures	Service	Agroindustry	Agriculture
Labour	0.12	0.19	0.08	0.14
Non Labour	0.49	0.62	0.78	0.66
Factorial/Value added/GDP	0.61	0.81	0.85	0.80
Manufactures	1.27	0.14	0.11	0.19
Service	0.02	1.01	0.02	0.02
Agroindustry	0.00	0.00	1.00	0.00
Agriculture	-0.07	-0.03	-0.02	0.95
Sectoral	1.22	1.13	1.11	1.16
Land-less Farmer	0.01	0.01	0.01	0.01
Small land-owner Farmer	0.02	0.03	0.02	0.02
Large land-owner Farmer	0.03	0.05	0.03	0.04
Low Income Non Farmer	0.06	0.09	0.06	0.07
Middle Income Non Farmer	0.05	0.07	0.05	0.06
High Income Non Farmer	0.04	0.05	0.04	0.05
Very High Income Non Farmer	0.05	0.06	0.07	0.06
Corporation	0.16	0.20	0.26	0.22
Institutional/Income	0.41	0.56	0.54	0.53
Total	2.24	2.50	2.50	2.49

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In general, manufactures in South Kalimantan have the least income linkages, which imply that its ability to generate income is limited. Injection in industry will stimulate inter-industry relationship, promoting other sectors in the economy to produce more inputs for industry. It cannot generate high-income because its value-added linkages are low. This may be explained by the observation that most industries in South Kalimantan still operate below their capacities. Economies of scale have not been achieved. Therefore, any exogenous injection in this sector will not attract more factors, which in turn prevents this sector from generating high value-added linkages.

Agroindustries' high value added linkages help generate factorial income that is distributed to households with leakage flowing to the other region. Agroindustry income linkage is important to the economy. If income growth among households is broadly based, this, in turn, will have substantial consumption linkages. The consumption linkages help to create a market for products from other sectors in the economy. Adelman (1984) and Mellor (1995) have suggested this industrialization process in particular reference to agricultural sectors. In South Kalimantan, the data shows that agroindustry's income linkage is higher than agriculture (See Table 6.3 for detail).

Like other sectors in the economy, agroindustry's forward linkages are lower than its backward linkages. This may be interpreted as agroindustry

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helping more in demand generation for other sectors in the economy while being less helpful in stimulating other sectors to grow by the provision of their inputs. This is understandable, as seen from the SAM model that most of agroindustry's products are not for domestic use as intermediate input for other sectors, instead they are exported. The share of agroindustry's export in its total output comprises 63.40 percent. This is high compared with industry, service and agriculture shares, which respectively are 34.91 percent, 31.80 percent and 24.91 percent.

Table 6.4   Forward Linkages in South Kalimantan Province

Description	Industry	Service	Agroindustry	Agriculture
Labour	0.00	0.00	0.01	-0.01
Non Labour	-0.01	0.01	0.01	-0.02
Factorial/Value added/GDP	-0.00	0.01	0.01	-0.03
Industry	1.27	0.24	0.16	0.20
Service	0.01	1.01	0.01	0.01
Agroindustry	0.00	0.00	1.00	0.00
Agriculture	-0.07	-0.06	-0.04	0.95
Sectoral	1.21	1.19	1.12	1.16
Land-less Farmer	0.00	0.00	0.00	0.00
Small land-owner Farmer	0.00	0.00	0.00	-0.00
Large land-owner Farmer	0.00	0.00	0.01	0.00
Low Income Non Farmer	0.00	0.00	0.00	-0.02
Middle Income Non Farmer	0.00	0.00	0.00	-0.00
High Income Non Farmer	-0.00	0.01	0.01	-0.01
Very High Income Non Farmer	-0.01	0.01	0.01	-0.03
Corporation	-0.00	0.00	0.00	-0.00
Institutional/Income	-0.01	0.02	0.03	-0.05
Total	1.20	1.23	1.17	1.08

Compared with other sectors in the economy, agroindustry has the lowest forward linkage (1.17). The highest forward linkage is for service (1.23) and then industry (1.20). Agroindustry is slightly better than agriculture that has only 1.08 (Table 6.4). As in backward linkages, agroindustry's forward linkages are strong both in factorial (value-added) and in income linkages exceeding all other sectors. In contrast, agroindustry has weak linkages in interindustry or sectoral linkages. Provided comparative advantage and productivity growth favourable, this emphasises that despite its weak linkages in input provision for other sectors production processes, agroindustry is more suitable for value-added generation and income improvement.

6.4   Trade Potential of Agroindustry

Industry dominates both exports and imports in the economy. Almost three fourths of exports from South Kalimantan are by industry. Its share in total exports is 73.09 percent. Its share in total import is even greater (84.47 percent). Agriculture is second with 18.97 percent of total exports and 12.07 percent of total import. The shares in total exports and imports are very low for services and agroindustries compared to the other two sectors (See Table 6.5 for details).

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Table 6.5   Export, Import and Output in South Kalimantan Province

Description	Industry	Service	Agro	Agric	Total
Export	6,457,890	611,835	89,466	1,676,190	8,835,381
Import	4,209,035	167,231	4,968	601,403	4,982,636
NE (Million rps)	2,248,855	444,604	84,498	1,074,787	3,852,745
Sectoral Output	18,501,159	1,924,018	141,107	6,729,725	27,296,010
NE (percent of Sectoral Output)	12.16	23.11	59.88	15.97	14.11
Export Share	34.91	31.8	63.4	24.91	32.37
Import Share	22.75	8.69	3.52	8.94	18.25
Export/Import	1.53	3.66	18.01	2.79	1.77
Share in Output	67.78	7.05	0.52	24.65	100
Share in Total Export	73.09	6.92	1.01	18.97	100
Share in Total Import	84.47	3.36	0.1	12.07	100

NE (Net Export)   = Export - Import
Export Share   = (Export/Total Sector) *100%
Import Share   = (Import/Total Sector)*100%
Share in Output = (Total Sector/Total)*100%
Share in Total Export= (Export/Total Export)*100%
Share in Total Import= (Import/Total Import)*100%

Based on total export and import shares, industry and agriculture are more tradable. This is a logical consequence of government policy to support these two sectors more than service and agroindustry. The majority of the Investment goes toward these two sectors. Industry shares 76.55 percent of the total sectoral investment in South Kalimantan, and agriculture has 16.60 percent. The structure of government expenditure also helps to spur the industrial sectors. Industry shares 58.35 percent of the total government expenditure, 516,785 million rupiahs (Table 6.6). Agriculture does have a strong natural resource endowment, especially in the forestry and fishery sub-sectors helping agriculture to become a tradable sector.

Table 6.6   Government Expenditure and Investment in South Kalimantan Province

Description	Government		Investment	
	Million Rps	%	Million Rps	%
Industry	301,544	58.35	3,204,156	76.55
Service	211,097	40.85	280,671	6.71
Agroindustry	514	0.10	5,695	0.14
Agriculture	3,631	0.70	694,950	16.60
Total	516,785	100.00	4,185,472	100.00

Services and agroindustry are less tradable as activities in these sectors are mostly small-scale and informal. They are managed as family businesses, using family labour, simple technology, and less capital. The business orientation mostly is to support family welfare.

However, the net export (NE) value indicates some potential for agroindustry, again with the supports of productivity growth and comparative advantage. It is small in absolute terms, which is unsurprising as agroindustry's output share is very low (only 0.52 percent of the total output in the economy). However, in terms of its own output percentage, this NE value is the highest (59.88 percent) among sectors in the economy. Furthermore, looking at the values of export shares and import shares, agroindustry comprises 63.40 percent and 3.52 percent of its total sectoral output. In comparison, industry has 34.91 percent of the export share in its output, and 22.75 percent share of imports. In addition, based on the ratio of exports to imports, agroindustry has 18.01 compared to industry with 1.53 (see Table 6.5).

The higher export-import ratio indicates agroindustry's potential as a tradable sector. As seen in Table 6.5, agroindustry outputs are very low compared to industry's output. Industry's output shares 20.77 percent of total output in South Kalimantan and agroindustry has only 0.52 percent. If their outer-region markets could be extended in accordance with the improvement of their outputs, at the level of output similar to the recent level of industry output, their tradability will be better than that of industry. For this to take place, government policy needs to be directed to support their supply side (productivity, product quality etc), demand side (promotion, trade policy etc), and infrastructures.

6.5 Conclusion

Among the sectors in South Kalimantan's economy, agroindustry is less important, as it has the smallest share, either in the output of production activities or in the value added created by factors in the production process. Manufacturing Industry dominates the economy. However, more detailed observation reveals that agroindustry indeed has some potential for economic development.

Agroindustry has better potential to generate value added, compared to any other sector in the economy of the South Kalimantan Province, as its value added share in its own output is the highest. Agroindustry is leading in productivity, not only in terms of labour productivity that is suitable for

the short run measure, but also in total factor productivity that is suitable for the long run measure of productivity.

Agroindustry's strong areas for linkages are in value-added linkages. This indicates that the full circular flow effects of an exogenous injection in agroindustry in South Kalimantan Province's economy result in generating more value added for the economy. Agroindustry's forward linkages are lower than its backward linkages. This means that agroindustry could be more helpful in demand generation for other sectors in the economy, but less helpful in stimulating other sectors to grow by provision of their inputs.

Although agroindustry has very little share in total export and total import, it has a good shape in the export import structure. As a proportion of its own output, agroindustry has high values for net export and for export shares, but has low value for import shares. In addition, agroindustry also has high value for export import ratio. These facts imply that agroindustry has potential as a tradable sector if it has adequate and appropriate support to develop. It induces foreign exchange generation.

7 Agroindustries and Income Distribution in South Kalimantan

7.1 Introduction

A SAM model can capture the circular flow of income and its distribution in an economy. In a SAM, income is generated by factors from the activities in various sectors of the economy. Some income is received from exogenous accounts, which in this case is the outer regions account. The following section (Section 7.2) discusses how factor income is generated in South Kalimantan, and the roles agroindustry plays in the process.

Income is distributed into various institutions in South Kalimantan, including households, corporations and the government. Income also leaks into the exogenous account in the form of non-labour receipt from outer regions. There are seven different levels of households based on their main source of income in the South Kalimantan SAM. To analyse income equality in South Kalimantan, it is important to know how income is distributed into these different households and how the distribution process affects the gaps between households. For this purpose, the seven households are grouped into three categories of households: low, medium and high income. This issue is discussed in section 7.3.

Based on these income categories, income distribution is examined, particularly in regard to agroindustry's position within the circular flows. In

this section, the results of the mixed multiplier analysis are used. The measures disclose the effects of an external shock to the flows of income distributed among institutions in South Kalimantan.

7.2 Agroindustry and Income

The sources of income in South Kalimantan's economy are from those production activities in economic sectors, which generates Gross Domestic Regional Product (GDRP). GDRP, based on the 1999 SAM is 14,778,175 million rupiahs. This accounts for 98.1 percent of total factor income. In addition, there is some additional income from outer regions received by factors. Income received by factors from outer regions comprises 280,149 million rupiahs (1.9 percent of total factor income). Total factor income or Gross Regional Product (GRP) covers domestic products as well as income from production in outer regions. Based on the 1999 SAM, this GRP is 15,058,324 million rupiahs (Table 7.1). Trade and external transfer have no significant effect on income generation as their shares are less than 2 percent of total GRP.

Table 7.1.   Factor Income and GDP in South Kalimantan Province

Description	Million Rupiahs			Percent of Total		
	Labour	Capital	Factor	Labour	Capital	Factor
Industry	1,687,041	6,892,701	8,579,743	57.3	56.9	57.0
Service	336,933	1,070,771	1,407,703	11.5	8.8	9.4
Agroindustry	9,049	102,580	111,629	0.3	0.9	0.7
Agriculture	778,058	3,901,042	4,679,100	26.5	32.2	31.1
GDP	2,811,081	11,967,094	14,778,175	95.6	98.8	98.1
Outer Regions	131,049	149,100	280,149	4.5	1.2	1.9
Total Income	2,942,130	12,116,194	15,058,324	100.0	100.0	100.0

Among domestic production activities, industry is the dominant sector with more than a half (57.0 percent), of South Kalimantan's GRP. Agriculture is second with 31.1 percent. Agroindustry has the smallest share of less than 1 percent.

Factor income is divided into labour and capital income. As seen in Table 7.1, labour contributes 2,942,130 millions rupiahs, whereas capital contributes 12,116,194 million rupiahs, 19.5 percent and 80.5 percent respectively of total factor income (Table 7.2). Total labour income derives from industry (57.3 percent) and agriculture (26.5 percent). For capital, industry contributes 56.9 percent and agriculture 32.2 percent. The service sector's contributions are slightly better than agroindustry, both in labour income and in capital income.

Table 7.2   Proportion of Factor Income for Labour and Capital

Factor	Million rps	%
Labour	2,942,130	19.5
Capital	12,116,194	80.5
Total	15,058,324	100.0

However, the small shares of agroindustry do not mean that agroindustry has no role in factor income formation. It should be recalled that agroindustry has some leading features compared to other sectors in the economy. Agroindustry has the highest share of value-added in output and the highest value-added multiplier (see Table 6.2) suggesting the potential of agroindustry to generate income in the economy. The high value-added share in output exhibits the capability of agroindustry to

produce value-added in every unit of its output in the existing condition. The highest value-added multiplier represents the roles of agroindustries in value-added formation as its response to an external shock, although the size of the shock matters. This means that despite its small shares in output and value added, agroindustry has the ability to produce higher value added in every unit increment of output compared to other sectors in the economy, either in a status quo economy or in a situation where exogenous injections are directed to this sector. An injection to any other sector will result in a lower proportion of value-added in every unit of output confirming other findings that agroindustry has potential for income generation (Anwar 1991, Solahuddin 1999).

Agroindustry is a productive sector in South Kalimantan, and can better contribute to growth. Agroindustry has the highest labour productivity among sectors in the economy, and its total factor productivity (TFP) is second to manufactures (Table 6.2). These two indicators are suitable productivity measures, labour productivity for short run and TFP for long run (Sargent and Rodriguez 2001). As suggested by Nasution et al. (1991), agroindustry provides a smooth bridge for the structural transformation process going from traditional sectors, which are primarily small-scale farms to secondary sectors, namely industries and manufacturing. With its high labour productivity, agroindustry has a wider chance to absorb redundant labour that used to work in the agricultural sector with very low productivity, which cannot be placed in urban industry

(Staatz and Eicher 1984). Agroindustries can help solve this problem by providing productive employment for the rapidly growing rural labour (Anwar 1991, Giovannucci 2001).

7.3 Household Classification Based on Per-capita Income

Households are one of the targets for the distribution of GRP or total factor income. The distribution of income among household levels is important to understanding income distribution in South Kalimantan. Based on total household income from the SAM, in combination with the population data of households in South Kalimantan, we can derive information about the per-capita income of each household level. This information is important to understand how to categorise households as low, medium or high income households. It can then be verified which households receive more factor income, and how these flows affect income equality in the South Kalimantan Province.

As seen in (Table 7.3), the highest per-capita income is for the household, 'very high income non farmer' (36,751 thousand rupiahs). The household of 'low income non farmer' that has the highest total income has only 2,557 thousand rupiahs per capita income. The lowest per-capita income is for the 'land-less farmer' household (1,008 thousand rupiahs).

Table 7.3   Total Income and Per-capita Income in South Kalimantan Province, 1999

Institution	Total (million rps)	Population	Per-capita (thousand rps)
Land-less Farmer	446,767	443,335	1,008
Small land-owner Farmer	1,098,570	498,112	2,205
Large land-owner Farmer	1,979,663	423,003	4,680
Low Income Non Farmer	2,962,119	1,158,250	2,557
Middle Income Non Farmer	2,398,331	325,715	7,363
High Income Non Farmer	2,600,290	163,180	15,935
Very High Income Non Farmer	1,907,579	51,905	36,751
Total	13,393,319	3,063,500	

For the purpose of analysis in this research, the seven households in South Kalimantan Province are grouped into three categories, low, medium and high-income households. The low-income household's per-capita income is less than 3,000 thousand rupiahs. The medium households have income between 3,000 – 10,000 thousand rupiahs, and the high households have more than 10000 thousand rupiahs. The consideration for these categories is that households with income levels between 3,000-10,000 thousand rupiahs can afford basic living costs, based on the 1999 prices.

Based on the criteria, the low-income households consist of land-less farmers, small landowner farmers and low-income non-farmers. The medium households are large landowner farmers and middle-income non-farmers, and the high-income households include high-income non-farmers and very high-income non-farmers.

7.4 The Roles of Agroindustry in Income Distribution

There are four types of institutions receiving factor income: households, corporations, the government and outer regions. For labour income, 100 percent is distributed to households. For non-labour income, corporations and the government receive about one third each, with 9.31 percent income going to outer regions and the balance distributed among the various household types in South Kalimantan. Of the entire factor income distributed in South Kalimantan, households receive 38.8 percent, corporations obtain 26.3 percent, and the government collects 27.3 percent. Only a small amount (7.5 percent) of factor income leaks to other regions (Table 7.4). This implies that in the economy of South Kalimantan factor income flows mostly to domestic institutions, with only very little leakage (7.5%).

Table 7.4   Factor Income Distribution in South Kalimantan Province

Institution	Labour	Capital	Factor
Land-less Farmer	5.4	0.5	1.5
Small land-owner Farmer	7.7	1.6	2.8
Large land-owner Farmer	16.5	2.2	5.0
Low Income Non Farmer	27.4	5.0	9.4
Middle Income Non Farmer	22.1	3.5	7.2
High Income Non Farmer	19.0	2.4	5.6
Very High Income Non Farmer	1.8	8.8	7.4
Households	100.0	24.0	38.8
Corporation	0.0	32.7	26.3
Government	0.0	34.0	27.3
Outer Regions	0.0	9.3	7.5
Total	100.0	100.0	100.0

South Kalimantan's economy seems to be dependent on external funds. SAM data record that the net factor income receipt of outer regions (income received from outer regions – income leakage to outer regions) is negative (-848,354 million rupiahs). As shown in Table 7.5, some 46.8 percent of factor income from outer regions is the return to labour and 53.2 percent is return to capital. Factor expenditure or leakage goes to foreign capital (100 percent). The income received by domestic factors from outer regions (280,149 million rupiahs) is less than the income that leaks to outer regions as the payment for foreign capital (1,128,503 million rupiahs). This implies that foreign capital is quite significant for South Kalimantan's economy.

Table 7.5   Receipt/expenditure of Factor Income from/for Outer Regions

Description	Labour	Capital	Factor
Absolute (Million Rupiahs)			
Factor receipt from outer regions	131,049.00	149,100.00	280,149.00
Factor expenditure for outer regions	-	1,128,503.00	1,128,503.00
Net (Receipt-Expenditure)	131,049.00-	979,403.00-	848,354.00
Percentage (%)			
Factor receipt from outer regions	46.8	53.2	100.0
Factor expenditure for outer regions	0.0	100.0	100.0
Net (Receipt-Expenditure)	-15.5	115.5	100.0

To understand the role agroindustry plays in income distribution, the results from the mixed multiplier analysis are utilized. These measures are able to disclose the effects of an external shock to the flows of income distributed among institutions in South Kalimantan. An external shock

means an exogenous injection on a certain endogenous account in the economy. The injection could be in the form of an increase in investment, additional government expenditure, changes in indirect taxes, changes in subsidy or trade expansion that applies to a particular sector.

Multipliers are distinguished by three types according to the accounts that are treated as endogenous in the model: factor, sector and institution multipliers. Factor multipliers that are also known as GRP or value-added multipliers tell how much factor income will change due to the exogenous injections. Sector multipliers are also known as production or sectoral output multipliers. These multipliers exhibit how much the changes in sectoral products or output results from exogenous injections. The last multipliers are institution multipliers or income multipliers. These multipliers represent the effects of exogenous injections of income received by institutions (households and corporation).

Table 7.6 depicts income multiplier effects in South Kalimantan's economy, when an injection is given to any endogenous accounts in the economy.

Table 7.6   Income Multiplier Effects of Injection on Sectors and Corporation in South Kalimantan Province

Injection	Multiplier				
	Income	Low	Medium	High	Corp.
Industry	0.411	0.089	0.079	0.084	0.160
Service	0.561	0.129	0.115	0.115	0.203
Agroindustry	0.539	0.094	0.080	0.109	0.255
Agriculture	0.530	0.109	0.096	0.108	0.217
Corporation	1.058	0.021	0.017	0.017	1.003

Among the four sectors in the economy, the services are sectors that generate the highest income or institution multiplier. For every unit of exogenous injection applied to this sector, a 0.561 unit of additional income is generated. Agroindustry is second with a 0.539 income multiplier. Agriculture follows with 0.530 and industry is the last. This sector has the lowest income multiplier, only 0.411 (Table 7.6).

If the focus is directed to a multiplier for poor households, the results reveal that the service and agricultural sectors are more favourable. These two sectors have higher multipliers, 0.129 and 0.109. Agroindustry and industry are both about the same, 0.094 and 0.089. These multipliers indicate the opposite of some previous works with the arguments that the development of agroindustry is suitable for poor households (Anwar 1991, Giovannucci 2001, Hayami and Kikuchi 1987, Reardon, et al. 1994).

Careful examination of the results, however suggests that agroindustries do influence income distribution flows in South Kalimantan. Agroindustry has only 0.094 of income multiplier for the low-income households, 0.080

for medium income households and 0.109 for high-income households, a structure that seems to benefit the high-income household more. However, most of the agroindustry income multiplier share is in the corporation sector (0.255), which is much higher compared to agroindustry's multipliers for the three household levels, and it is higher than the other sector multipliers for the corporation. The increase in income generated for corporations has its own effects on households. As depicted in Table 7.6, any increase in income of corporations generates additional income as represented by its multiplier on the last row. Among households in South Kalimantan, the corporation income multiplier is the highest for the low-income households.

Although an exogenous injection on agroindustry does not produce the highest income multiplier for the poor, it generates a significantly high-income multiplier for the corporations. In turn, the corporations derive additional income for households, which is mostly absorbed by the poor households. Income multipliers of exogenous injections on corporation are respectively, 0.021 for low households, 0.017 for medium households and 0.017 for rich households (last row of Table 7.6). As a final result, agroindustry will help the poor households to earn more additional income through direct and indirect multiplier process: the accumulation of its direct multiplier through its own sector, and its indirect multiplier that triggers a corporation to create another multiplier.

To address this issue, efforts are focussed directly to the targets. This is known as the 'specificity rule', and the multiplier analysis results confirm this. The highest multiplier is generated if the exogenous injection is directly applied to the target. For instance, to acquire the highest value-added multiplier, the exogenous injection has to be directed to factors (labour and capital). To improve the income of poor households, the exogenous injections need to be applied to landless farmers, small landowner farmers and low-income non-farmers.

To improve income distribution, the income of low-income households needs to be increased relative to high income as overall real income increase. As seen in Table 7.7, the highest income multiplier for the low-income can be acquired if exogenous injections are given to landless farmers (1.017), small landowner farmers (1.010) and low-income non-farmers (1.011). However, in the economy, household incomes are not only affected by the injections, they are also influenced by all endogenous accounts. Actually, the total multiplier effects of the injections are not the highest. They are respectively 1.033, 1.087 and 1.090. The highest value for total multiplier effects is if the injection is given to agroindustry (2.497).

Table 7.7   Income Multiplier Effects of Injections on Total and Low Income Households

Injection	Multiplier	
	Total	Low
Labour	2.065	0.416
Non Labour	1.588	0.079
Industry	2.240	0.089
Service	2.496	0.129
Agroindustry	2.497	0.094
Land-less Farmer	1.033	1.017
Small land-owner Farmer	1.087	1.010
Large land-owner Farmer	1.078	0.012
Low Income Non Farmer	1.090	1.011
Middle Income Non Farmer	1.079	0.009
High Income Non Farmer	1.016	0.008
Very High Income Non Farmer	0.893	-0.001
Corporation	1.059	0.021
Agriculture	2.489	0.109

This indicates that the injections to those three households are quite helpful for income equality purposes, but not appropriate for the development of the economy as the injections create less value added multiplier and production multiplier. Agroindustry, on the other hand, has less multiplier effects on income for the low-income households, but has a far higher multiplier effects for value-added and production. If the three types of multipliers (production, value added and income) are taken into account simultaneously, then agroindustry is a better choice.

Apart from exogenous injections on their own accounts, which generate the highest income multiplier, household income can also be improved by injections to factors or sectors. Among factors, it is shown in Table (7.8.) that labour is a better target for injection than capital if an improved income distribution is the main objective of the strategy. For all types of

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households in South Kalimantan, labour generates higher income multipliers. Low-income household labour creates a 0.416 additional income increase for every unit of exogenous injection directed to this factor, whereas capital has only 0.079. This probably reflects labour-capital-ratio in the economy. For medium income households, labour generates 0.395 and capital 0.064. For the high-income households, labour improves income by 0.217, whereas capital only creates 0.118 of income multiplier. This indicates that South Kalimantan depends more on labour in order to improve the income structure and to spur growth. This also highlights that labour is a critical aspect to consider as its changes have a significant influence on household income.

Table 7.8   Income Multiplier Effects of Injections on Factors

Injection	Multiplier		
	Poor	Medium	Rich
Labour	0.416	0.395	0.217
Non Labour	0.079	0.064	0.118

In relation to the above indications, agroindustry has the potential to support labour development. Agroindustry is the sector with the highest productivity (15.59, see Table 6.2). It can absorb surplus labour from sectors with low productivity. Therefore, agroindustry helps smooth the transformation process (Nasution, et al. 1991), and facilitates the way to transfer resources from agriculture to non-agriculture (Eicher and Staatz 1984). This role, according to Johnston and Mellor (Johnston and Mellor 1995) is necessary for accumulating and self-sustaining growth. High productivity could also imply high wage rates, which help the economy to

keep the resources in the region, prevent urbanisation and increase income for labour and, in turn, confirm the arguments that the process helps foster rural development (Solahuddin 1999, Suryana, et al. 1998).

7.5 Conclusion

In South Kalimantan, the total income received by factors, also known as Gross Regional Product (GRP), reaches 15,058,324 million rupiahs. From this amount, GDRP is counted as 98.1 percent of total factor income, and 1.86 percent is factor income received from outer regions. This indicates that domestic production activities are dominant in South Kalimantan Province's economy.

Among domestic production activities, the most dominant sector is industry, which shares more than a half of the GRP of the South Kalimantan Province. Yet, agroindustry is involved much in economic activities, and has the smallest share in GRP. However, despite the smallest share, agroindustry has better potential in generating factor income for the economy as it has high value-added shares in output and value-added multiplier. Agroindustry is also the most productive sector in the economy, both in the long run and short run.

Income equality is determined by how large the gaps in income between various levels of households in an economy are. In the South Kalimantan

Province, per-capita income of household groups range between 497 and 21,581 thousand rupiahs. Households of various levels receive 38.84 percent of total factor income or GRP, corporation earns 26.33 percent, government receives 27.33 percent, and only very small amount (7.49 percent) leaks to other regions of the South Kalimantan Province. The data also indicate that South Kalimantan Province's economy is dependent on external funds, as its net factor income receipt of outer regions is negative.

Agroindustry can help poor households improve their income. Although an exogenous injection on agroindustry does not produce the highest income multiplier for the poor, it generates a significantly high-income multiplier for corporations. This will derive additional income for households, which is particularly mostly absorbed by the poor households.

8 Development Strategy for Enhancing Growth with Equity in South Kalimantan Province

8.1 Introduction

The choice of an economic development strategy determines the development process, income equality, and growth. This chapter investigates alternative policies for economic development in South Kalimantan. The investigation focuses on how policies impact on income distribution and economic growth. The mixed multiplier model is used for the simulations. The policy scenarios are examined to better understand improvements in income equality and growth.

The simulation results, together with information about the constraints that might be faced in the development process, and government roles in addressing the constraints are formulated into a development strategy for South Kalimantan. The final goal of the investigation is to ensure that the strategy maintains economic growth while improving income distribution.

First, the indicators for the improvement of the regional economy and income distribution are presented (Section 8.2). This section discusses criteria that can be used in the measurement of growth and income equality. The section also describes the initial conditions in South Kalimantan's economy as a benchmark. It then compares the results of simulations using various scenarios.

In Section 8.3, possible strategies for economic development in South Kalimantan are presented and translated into scenarios of exogenous injection into a particular sector of the economy, applicable for the mixed multiplier model. In Section 8.4, the simulation results are discussed. The results of every scenario are compared to the benchmark to understand the effects on the economy, particularly in terms of income distribution and economic growth.

Section 8.5 discusses the constraints that might be faced in agroindustrial development, together with possible strategies. The government supporting roles required to support agroindustrial development is discussed in Section 8.6.

8.2 The Indicators for the Improvement of Regional Economy and Income Distribution

Based on the 1999 South Kalimantan SAM model, economic development is indicated by the value of Gross Regional Product (GRP). The value represents how much income or value added is received by factors from all production activities of the four sectors in South Kalimantan: industry, service, agroindustry, and agriculture, including income received by factors from outer regions.

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Total sectoral product (TSP) is another measure for economic development. This value represents the amount of output produced by all sectors in the economy. This includes all products that are used as intermediate inputs of the production process, and products that are consumed by households and by the government. Exported products are also included in this value. This measure is derived from the production multipliers.

Economic development progress is also detected by the value of total income (TI) received by households in the economy. This value depicts all income received by households from various sources. This covers the flow of income from factors distributed to households, as the return to their factors (labour and capital), and income received by households as direct transfers. The transfers come from government, from outer regions and from transfers among households themselves. In the SAM mixed multiplier model, this value is calculated from the institution multipliers.

To see how income of the low-income households improves as the effects of the scenarios, the measure total income received by the low income households (TI-Poor) is calculated as well. This value is the part of TI, which only includes low income households (landless farmer, small landowner farmer and low income non farmer households).

Another way to measure economic development progress is the combination of all the measures described above. This measure is total output of the economy (TOE). Total output of the economy is the summation of the amount of value added for factors, total income received by households and corporation and the value of total products produced in production sectors. In the mixed multiplier model, TOE is calculated as the sum of all multiplier effects in the economy, including factor/GDP, institution/income and sector/production multiplier.

The initial condition of South Kalimantan for those measures is utilized as the benchmark to compare simulation results depicted in Table 8.1. All the values in this table are the pre-simulation values. These will be compared to the values of the same measures resulting from the simulation process. The changes in the measures indicate the effects of applied policies to the improvement on the regional economy in South Kalimantan.

Table 8.1   Initial Condition of South Kalimantan Province's Economy (Million Rupiahs)

Descriptions	Value
Gross Regional Product	15,058,324
Total Sectoral Products	27,296,010
Total Income	18,231,640
Total Output of the Economy	60,585,974

For income equality improvement, the indicator that is used is the Gini ratio. Despite some criticisms of its drawbacks (Garafalo and Fogarty 1979, Paglin 1975, Svedberg 2001), the Gini ratio is a traditional and the most commonly used measure of inequality (Gillis, et al. 1992, Paglin 1975, Svedberg 2001). It calculates the degree of variation from absolute equality of a population income distribution. It relates the cumulative proportion of population and the cumulative proportion of income earned (Sanchez 2002), and covers the variation in income distribution for the whole range of population levels, not only the richest and the poorest ones (Svedberg 2001). The formula to calculate Gini Ratio in this research is as follows:

(8.1): $$GR = 1 - \sum_{i=1}^{n} fp_i * (Fc_i + Fc_{i-1})$$

Where:

GR   = Gini Ratio

n   = number of household categories

fp_i = proportion of population number for household category i

Fc_i = cumulative total income in household category i

Fc_{i-1} = cumulative total income in household category i-1

To calculate Gini ratio using data from the SAM model, information about population in every household category is needed. A household survey has been carried out for this purpose, and 700 households have been chosen as respondents, using proportionate random sampling. The household respondents are distributed proportionally among ten districts in South Kalimantan based on the population in each district, then samples from every district are chosen at random. All samples chosen are then classified based on their primary income sources and their main jobs into seven different types of households. The classification is shown in Table 8.2, which indicates the number of households in every household category in a particular district.

Table 8.2   The Distribution of Sample Households Based on Their Categories and Districts.

Districts	Household Category							Total
	1	2	3	4	5	6	7	
Batola	9	10	9	24	7	3	1	62
Banjar	17	19	16	45	13	6	2	118
Tanah Laut	8	9	8	21	6	3	1	56
Tapin	5	5	4	12	3	2	1	32
Hulu Sungai Selatan	6	7	6	17	5	2	1	45
Hulu Sungai Tengah	8	9	7	20	6	3	1	53
Hulu Sungai Utara	10	11	9	25	7	4	1	67
Tabalong	6	6	5	15	4	2	1	40
Kotabaru	14	16	14	37	10	5	2	99
Banjarmasin	18	21	18	48	14	7	2	128
Total	101	114	97	265	74	37	12	700

Household types :

1   Land-less farmer (farmer that have no land)
2   Small landowner farmer (farmer with land less than 2 hectares)
3   Large landowner farmer (farmer with land more than 2 hectares)
4   Low-income non farmer (seasonal unskilled labour, labour in informal sectors)
5   Middle income non farmer (unskilled labour)
6   High income non farmer (skilled labour, professionals)
7   Very high income non farmer (enterprise owners, managers, high wage labour)

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This is then inferred into the population data of South Kalimantan in 1999, which estimates the distribution of population in South Kalimantan Province based on household categories and districts. The distribution is presented in Table 8.3. The information about the number of persons in each household category is combined with the information about total income of each household category from the 1999 South Kalimantan Province's SAM model. The combination is used to calculate Gini ratio as the benchmark to compare other Gini ratio calculations that have resulted from simulations of various scenarios. The initial Gini ratio of South Kalimantan Province is 0.3637.

Table 8.3 Population Distribution in South Kalimantan Province Based on Household Category and District

District	Household Category							Total
	1	2	3	4	5	6	7	
Batola	39,541	44,427	37,728	103,305	29,051	14,554	4,629	273,234
Banjar	74,808	84,052	71,378	195,444	54,961	27,535	8,759	516,936
Tanah Laut	35,754	40,172	34,114	93,410	26,268	13,160	4,186	247,065
Tapin	20,161	22,652	19,236	52,672	14,812	7,421	2,360	139,314
Hulu Sungai Selatan	28,428	31,940	27,124	74,269	20,886	10,463	3,328	196,438
Hulu Sungai Tengah	33,758	37,930	32,210	88,197	24,802	12,426	3,952	233,275
Hulu Sungai Utara	42,515	47,768	40,565	111,073	31,235	15,649	4,978	293,781
Tabalong	25,073	28,171	23,923	65,506	18,421	9,229	2,936	173,259
Kotabaru	62,466	70,184	59,601	163,198	45,893	22,992	7,313	431,648
Banjarmasin	80,831	90,818	77,124	211,177	59,386	29,752	9,464	558,550
Total	443,335	498,112	423,003	1,158,250	325,715	163,180	51,905	3,063,500

8.3 Alternative Strategies

Recently, the paradigm of regional autonomy has emerged in Indonesia. Since these rules of decentralisation were applied in January 2001, the government of Indonesia formulated two *Undang-undangs* (laws)

numbered 22/1999 regarding regional governments and numbered 25/1999 regarding financial equalising between the central and regions (Usman, et al. 2000). The relationship between regions and the central (Jakarta) government has changed (Gunadi 2001). Based on the new laws, regions have 15 percent shares in oil revenue. For Mining revenue regions receive 80 percent, and 20 percent is for the central government. These distributions also apply to other natural resource products (Table 8.4). This change affects a region's revenue, particularly for regions with large natural resource endowments.

Table 8.4   Equalised Funds Between Central and Regions

Type of Revenue	Central	Region	
		Province	District
1 Land and Building Tax	10	16.2	64.8
2 Fees for the revenue of land and building	20	16	64
3 Natural Resources			
a. Forestry			
- Fees for forest exploration	20	16	64
- Fees for provision of forest resource	20	16	**64
b. General mining			
- Fix fees	20	16	64
- Fees for exploration and exploitation	20	16	**64
c. Fishery	20	-	80
d. Oil	85	3	***12
e. Natural Gas	70	6	****24
4 General allocation fund	-	10	90
5 Special allocation fund	60		40

Source: Law (Undang-undang) number 25/1999
and Government Regulation (Peraturan Pemerintah) number 104/2000
* The rest 9% for collecting fees
** 32% for producing district and 32% for other districts in the province
*** 6% for producing district and 6% for other districts in the province
**** 12% for producing district and 12% for other districts in the province

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Decentralisation also affects investment flows. According to the new laws, approvals for the operations of mining and forestry industries are the authorities of regions. If a region can formulate an appropriate regulation it can attract investment to itself. The new laws also give authority to regions to impose taxes and exploit fees for land and building utilisation, including fees applied to trade, restaurants and hotels.

South Kalimantan is enabled by these new laws to have a wider chance in collecting funds for development. The dominant share of sectors in South Kalimantan Province GDRP were sectors utilizing natural resources such as coal, forestry, and oil. Trade, restaurant, and hotel also share a significant amount in GDRP (Table 3.6). If the government of South Kalimantan can appropriately formulate regulations (not to impose taxes excessively), additional significant amounts of funds could be collected.

The way the government of South Kalimantan spends the additional funds will shape developments in the region. An appropriate strategy needs to be formulated carefully in order for South Kalimantan to achieve the best results in regional economic development, in particular for the purpose of improving the regional economy and income equality.

This section highlights some scenarios of alternative strategies for development in South Kalimantan. A combination of changes in injections of exogenous accounts of the SAM model on sectors, factors and

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institutions (households and corporation) in the South Kalimantan Province are investigated. The injections include reallocations of government expenditure, indirect taxes, subsidies, investment, and changes in trade pattern. These are formulated into 16 different scenarios. The scenarios reflect how the injections are allocated among factors (between capital and labour) and sectors (industry, service, agroindustry and agriculture), and whether or not the low-income households (landless farmers, small landowner farmers and low-income non farmers) in South Kalimantan benefit from the injections.

8.4 The Simulation Results of the Strategies Using Mixed Multiplier Model

To run the scenario simulations on the mixed multiplier SAM Based model, some macrocodes are formulated in Microsoft Excel software. All the scenarios are run in a simulation model of mixed multiplier matrix. This model reflects income and expenditure flows as the effects of injections on indicators of economic development in South Kalimantan Province, as well as the indicator of income equality. As discussed above, the indicators for economic development are Gross Regional Product (GRP), Total Sectoral Product (TSP), Total Income (TI), and Total Output of the Economy (TOE). Meanwhile, the indicator of income equality is the Gini Ratio. A benchmark, which is the initial condition of South Kalimantan's economy is based on the 1999 SAM model.

8.4.1 Strategies Focussing on Capital

To represent the tendency of the present development pattern based on the existing condition, a capital-industry focus (CI) scenario is designed. It is assumed that the government will continue to focus on manufacturing industry sectors, and support capital intensive development strategy, and therefore the additional funds collected will be directed to support this policy. The CI scenario is simulated as the injection on capital account to increase 30 percent of its initial total economy output (TOE), together with 20 percent injection to the industry sector. This is a strategy of public investment in infrastructure and manufactures.

To compare the effects of injection on the other sectors in the economy, capital-service focus (CS), capital-agroindustry focus (CAo), and capital-agriculture focus (CAi) are designed. They all have the same 30 percent injection on the capital account, with 20 percent injection on their own accounts (Table 8.5.).

Table 8.5   Description of Scenarios for Strategies Focussing on Capital

Scenario	Description (Increased proportion in total output of particular account)
Benchmark	Initial condition based on 1999 SAM data
CI	Capital 30 percent, industry 20 percent
CS	Capital 30 percent, service 20 percent
CAo	Capital 30 percent, agroindustry 20 percent
Cai	Capital 30 percent, agriculture 20 percent

Table 8.6 presents a summary of indicator changes as the strategies are simulated in the mixed multiplier model. Deviation indicates the difference between result from simulation and benchmark value, stated in terms of percentage of benchmark value. The formula is:

(8.2.): $D = ((S - B) / B)) * 100\%$

Where:

D   = Deviation

S   = Value Resulted from simulation

B   = Benchmark Value

The simulation results show that among these capital focus strategies, the strategy of capital-industry focus (CI) generates the highest results for all growth indicators (GRP, TSP, TI, TI-Poor and TOE). However, in terms of Gini ratio indicator, it is clear that all the strategies generate slightly higher values than the benchmark. This means that income inequality is worsened when capital is the focus, no matter what sector is supported. If the choice is to find a strategy that has the least effect on income inequality, then capital-industry focus is also best compared to the other strategies focussing on capital.

Table 8.6   Summary of Indicators Changes as the Results of Strategies Focussing on Capital Simulations

Scenario	Indicators					
	GRP	TSP	TI	TOE	GR	TI-Poor
Absolute value (million rupiahs)						
CI	20,925,859	31,827,794	21,893,270	74,646,923	0.3696	5,124,661
CS	18,991,481	27,738,582	20,588,772	67,318,835	0.3701	4,845,891
CAo	18,704,232	27,336,604	20,387,492	66,428,328	0.3704	4,798,514
CAi	19,752,891	28,868,657	21,086,637	69,708,185	0.3702	4,993,547
Deviation to benchmark (percent)						
CI	38.97	16.60	20.08	23.21	1.61	13.69
CS	26.12	1.62	12.93	11.11	1.76	7.51
CAo	24.21	0.15	11.82	9.64	1.84	6.46
CAi	31.18	5.76	15.66	15.06	1.80	10.78

8.4.2 Strategies Focussing on Labour

Next, four scenarios are designed to observe the effects of injections on labour combined with various sectors (Table 8.7). These scenarios have the same features as the earlier four scenarios, except that in the injection to factors, the 30 percent injection is given to labour instead of capital. This means that additional government expenditure or investment is directed toward improving labour quality and quantity. The scenarios are named as follows: labour-industry focus (LI), labour-service focus (LS), labour-agroindustry focus (LAo), and labour-agriculture focus (LAi).

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Table 8.7   Description of Scenarios for Strategies Focussing on Labour

Scenario	Description (Increased proportion in total output of particular account)
LI	Labour 30%, industry 20%
LS	Labour 30%, service 20%
Lao	Labour 30%, agroindustry 20%
Lai	Labour 30%, agriculture 20%

The simulation results of these strategies are summarised in Table 8.8. Labour-industry focus (LI) strategy has the highest percentage of increase for all growth indices (GRP, TSP, TI, TI-Poor or TOE).

In terms of changes in Gini ratio, the simulations of strategies focussing on labour are slightly different to the simulations of strategies focussing on capital. As seen in Table 8.8, the highest reduction in the Gini ratio is generated by labour-service focus (LS) strategy (-2.05 percent). Industry and agroindustry have the same effects in reducing the Gini ratio (-2.01 percent).

Table 8.8   Summary of indicator Changes as the Results of Strategies Focussing on Labour Simulations

Scenario	Indicators					
	GRP	TSP	TI	TOE	GR	TI-Poor
Absolute value (million rupiahs)						
LI	18,192,607	31,844,207	20,659,940	70,696,755	0.3564	5,202,476
LS	16,258,230	27,754,994	19,355,442	63,368,666	0.3562	4,923,706
LAo	15,970,981	27,353,017	19,154,162	62,478,160	0.3564	4,876,329
LAi	17,019,640	28,885,070	19,853,308	65,758,017	0.3566	5,021,361
Deviation to benchmark (percent)						
LI	20.81	16.66	13.32	16.69	-2.01	15.42
LS	7.97	1.68	6.16	4.59	-2.05	9.23
LAo	6.06	0.21	5.06	3.12	-2.01	8.18
LAi	13.02	5.82	8.89	8.54	-1.94	11.40

8.4.3   Strategies Focussing on Capital and Low-income Households

The South Kalimantan Province could focus more on helping low-income households. The decentralisation helps this purpose, because South Kalimantan can utilise the increased general allocation funds. To represent this situation some alternative strategies are presented. The scenarios are almost the same as in the strategies focussing on capital. The difference is that in these scenarios, the low-income households are given 10 percent injections each (Table 8.9). The scenarios are capital-industry-low-income households focus (CIP), capital-service-low-income households focus (CSP), capital-agroindustry-low-income households focus (CAoP), and capital-agriculture-low-income households focus (CAiP).

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Table 8.9   Description of Scenarios for Strategy Focussing on Capital and Low-Income Households

Scenario	Description (Increased proportion in total output of particular account)
CIP	Capital 30%, industry 20%, low-income households 10% each
CSP	Capital 30%, service 20%, low-income households 10% each
CAoP	Capital 30%, agroindustry 20%, low-income households 10% each
CAiP	Capital 30%, agriculture 20%, low-income households 10% each

The simulation results reveal a similar pattern for indicators of economic development (Table 8.10). Industry is still the sector creating the highest deviation from the benchmark and agriculture is in second place. This is not surprising as industry and agriculture are the two sectors receiving support and promotion policies the most from the government of the South Kalimantan Province. Capital is generally concentrated in these two sectors, therefore any injection on capital will benefit the sectors.

In terms of the Gini ratio, treatment given to low-income households clearly has significant effect in lowering the Gini ratio, thus reducing income inequality. The 10 percent injection given to the low-income households (such as direct transfer, subsidies etc), results in about four percent decrease in the Gini ratio. Without the low-income household injection, a strategy focussing on capital will even increase the Gini ratio.

Table 8.10   Summary of Indicator Changes as the Results of Simulation of Strategies Focussing on Capital and Low-Income Households

Scenario	Indicators					
	GRP	TSP	TI	TOE	GR	TI-Poor
Absolute value (million rupiahs)						
CIP	20,929,845	31,846,795	22,358,678	75,135,319	0.3480	5,580,604
CSP	18,995,468	27,757,583	21,054,180	67,807,231	0.3474	5,031,834
CAoP	18,708,219	27,355,605	20,852,900	66,916,725	0.3475	5,254,457
CAiP	19,756,878	28,887,658	21,552,046	70,196,582	0.3480	5,399,490
Deviation to benchmark (percent)						
CIP	38.99	16.67	22.64	24.01	-4.31	23.81
CSP	26.15	1.69	15.48	11.92	-4.48	11.63
CAoP	24.24	0.22	14.38	10.45	-4.46	16.57
CAiP	31.20	5.83	18.21	15.86	-4.33	19.79

8.4.4 Strategies Focussing on Labour and Low-Income Households

To simulate the effects of strategies focussing on labour as well as on low-income households, another four alternative strategies are formulated. These are: labour-industry-low-income households focus (LIP), labour-service-low-income households focus (LSP), labour-agroindustry-low-income households focus (LAoP), and labour-agriculture-low-income households focus (LAiP). The strategies have similar treatments as in the strategies focussing on capital and low-income households, except that injections are given to labour instead of capital. The treatments are 30 percent injection on labour, 20 percent injection on sector, and 10 percent for each low-income households (Table 8.11).

Table 8.11 Description of Scenarios for Strategy focussing on Labour and Low-income households

Scenario	Description (Increased proportion in total output of particular account)
LIP	Labour 30%, industry 20%, low-income households 10% each
LSP	Labour 30%, service 20%, low-income households 10% each
LAoP	Labour 30%, agroindustry 20%, low-income households 10% each
LAiP	Labour 30%, agriculture 20%, low-income households 10% each

Table 8.12 gives the summary of indicator changes as the results of strategy simulations focussing on labour and low-income households. The results again confirm that industry is the sector that gives the highest economic growth, and agriculture is second, if the injections are directed toward these sectors. Either by focussing on capital or on labour, with or without injections to low-income households, it is apparent that industry and agriculture are the leading sectors if the economic development purpose is only for growth indicator increase.

However, when reducing income inequality is taken into consideration, then industry no longer leads. Table 8.12 shows that the largest reduction in the Gini ratio will be acquired if the injection is directed to agroindustry (LAoP), which gives a 8.21 percent decrease in the Gini ratio compared to the benchmark. Service (LSP) stays in the second place, whereas industry has the lowest reduction in the Gini ratio.

Table 8.12   Summary of Indicator Changes as the Results of Simulation of Strategies Focussing on Labour and Low-Income Households

Scenario	Indicators					
	GRP	TSP	TI	TOE	GR	TI-Poor
	Absolute value (million rupiahs)					
LIP	18,196,594	31,863,208	21,125,349	71,185,151	0.3352	5,658,419
LSP	16,262,217	27,773,995	19,820,851	63,857,063	0.3339	5,379,649
LAoP	15,974,968	27,372,018	19,619,571	62,966,557	0.3338	5,332,272
LAiP	17,023,626	28,904,071	20,318,716	66,246,414	0.3347	5,477,304
	Deviation to benchmark (percent)					
LIP	20.84	16.73	15.87	17.49	-7.84	25.53
LSP	7.99	1.75	8.72	5.40	-8.20	19.35
LAoP	6.09	0.28	7.61	3.93	-8.21	18.30
LAiP	13.05	5.89	11.45	9.34	-7.97	21.52

8.4.5 Comparison of the Strategies

The whole indicator's deviation of every strategy when simulated using the mixed multiplier model is shown in Table 8.13.

The strategies used for the simulations presented here show how to improve income equality while still enhancing economic growth. The strategies give higher values for all economic indicators compared to the benchmark values. However, for the Gini ratio certain strategies turn out higher values. These are strategies focussing on capital: CI, CS, CAi and CAo. This means that the application of these strategies could make the income gap in the economy wider. All of the strategies concentrate

exogenous injections only on capital and production sectors, while overlooking injections on low-income households.

Table 8.13 Indicator's Deviation to Benchmark from Different Scenarios (Percentage)

Scenario	GRP	TSP	TI	TOE	GR	TI-Poor
LAoP	6.09	0.28	7.61	3.93	-8.21	18.30
LSP	7.99	1.75	8.72	5.4	-8.2	19.35
LAiP	13.05	5.89	11.45	9.34	-7.97	21.52
LIP	20.84	16.73	15.87	17.49	-7.84	25.53
CSP	26.15	1.69	15.48	11.92	-4.48	11.63
CAoP	24.24	0.22	14.38	10.45	-4.46	16.57
CAIP	31.2	5.83	18.21	15.86	-4.33	19.79
CIP	38.99	16.67	22.64	24.01	-4.31	23.81
LS	7.97	1.68	6.16	4.59	-2.05	9.23
LI	20.81	16.66	13.32	16.69	-2.01	15.42
Lao	6.06	0.21	5.06	3.12	-2.01	8.18
Lai	13.02	5.82	8.89	8.54	-1.94	11.40
CI	38.97	16.6	20.08	23.21	1.61	13.69
CS	26.12	1.62	12.93	11.11	1.76	7.51
CAi	31.18	5.76	15.66	15.06	1.8	10.78
Cao	24.21	0.15	11.82	9.64	1.84	6.46

To help low-income households, supporting intervention should be targeted directly to them. The simulation results reveal that giving injection to the low-income households makes the Gini ratios lower than other policies where low- income households are not targeted. These injections also improve income of the low income households. The simulation results suggest that to improve growth and equity, injections to

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labour are more favourable than injections to capital. The simulation results confirm that among the eight strategies targeting low-income households, the strategies that focus more on labour are of a higher rank compared to the strategies that focus more on capital.

Different development objective require different strategies, and a strategy needs to be altered appropriately when the priorities of a development program changes. The choice of whether to choose labour or capital among factors, or to choose one of four different sectors (industry, services, agroindustry and agriculture) have different effects on growth and income equality.

For instance, if the priority of development is to increase gross regional product (GRP), the most suitable strategy for the purpose is to lead the exogenous injections into capital, industry and low-income households. The simulation results show that the strategy (CIP) generates the highest value for GRP (20,929,845 million rupiahs), which increases from the benchmark by more than one-third (38.99 percent).

If the government's purpose is to increase the amount of total income (TI) received by institutions (households and corporation), then injections to capital and industry will be more favourable. Additional injections to low-income households will also be helpful. The strategies more suitable for total income improvement are CIP and CI.

Interestingly, if the focus of development is to increase income for the low income households, the simulation shows that LIP strategy has the highest value. This strategy improves income 25.53%. The CIP strategy in the second place, improving income only 23.81%. This is caused by the fact that industry is dominant in the economy and that labour has a better income multiplier effects than capital. This condition also highlights the facts that directly targeting low income households in injections will help to better improve their income.

If total output of the economy (TOE) is used as the economic development indicator, the strategies focussing on capital among factors and on industry among sectors give a higher increase in TOE. The CIP strategy provides the most significant results with 24.01 percent additional TOE compared to the benchmark. This is apparent, as TOE is the cumulative value of GRP, TI, and TSP. The CIP has the highest values for two indicators already (GRP and TI).

The reasons for the CIP strategy's higher values in GRP, TI and TOE are traced back to the fact that both capital and industry dominate the economy. In an economic structure, activities in the industrial sector generate 56.98 percent of South Kalimantan's GRP, which in turn flows to labour and capital as return to factors or factorial income. Capital alone shares more than 80 percent of this return.

A different strategy is required if the government of South Kalimantan wants to boost production activities in the region. Suppose the government wants to increase production activity, increase output, and therefore additional employment is needed to support the increase in production scale. For this scenario, the most suitable strategy to apply in South Kalimantan based on the model simulations is the exogenous injections into labour, industry and low-income households (LIP). The LIP strategy produces an additional 16.73 percent of total sectoral output (TSP). By directing exogenous injections to labour, for instance in the form of quality improvements or to better match job needs with capacity, the possibility for Higher employment is enhanced. The injection to the industrial sector helps the creation of employment more.

Finally, when the development strategy purpose is primarily to improve equality while maintaining growth, then the strategy that focuses the injections on labour, agroindustry, and low-income households (LAoP) is the best. The LAoP strategy has 0.3338 of GR and 62,966,557 of TOE. Compared to the benchmark, the LAoP strategy gives a quite significant improvement, both in income equality and in economic development. The Gini ratio is successfully reduced by −8.21 percent and economy's total output increases by about 3.93 percent (Table 8.13.). The capability of agroindustry in redistributing factorial income among seven different households in South Kalimantan has a significant contribution to this high

reduction in the Gini ratio. The choice to place the injections on labour and low-income households is also part of the cause for a large reduction in the Gini ratio. As low-income households generate the majority of their income by their labour, any labour exogenous injections will boost income improvement. So do the injections for low-income households.

8.5 The Constraints of Agroindustrial Development

It is obvious from the 16 different scenarios used in the simulations that no single strategy is best for both improving income equality and growth at once. Some strategies are suitable to increase income for low-income levels, but not as appropriate for boosting growth. On the contrary, the strategies that produce significant increases in economic growth indicators, have less impact on reducing the Gini ratio. This is one constraint of agroindustrial development in South Kalimantan.

The injection on agroindustry does have significant effects in reducing the Gini ratio and in improving the economic performance in the region. However, the last effect is not as significant as its effect on the Gini ratio. If the trade-off between these two purposes (income equality and growth) among the sixteen scenarios is projected in a graph, the result is as displayed in (Figure 8.1) below.

Figure 8.1 Summary of Simulation Results
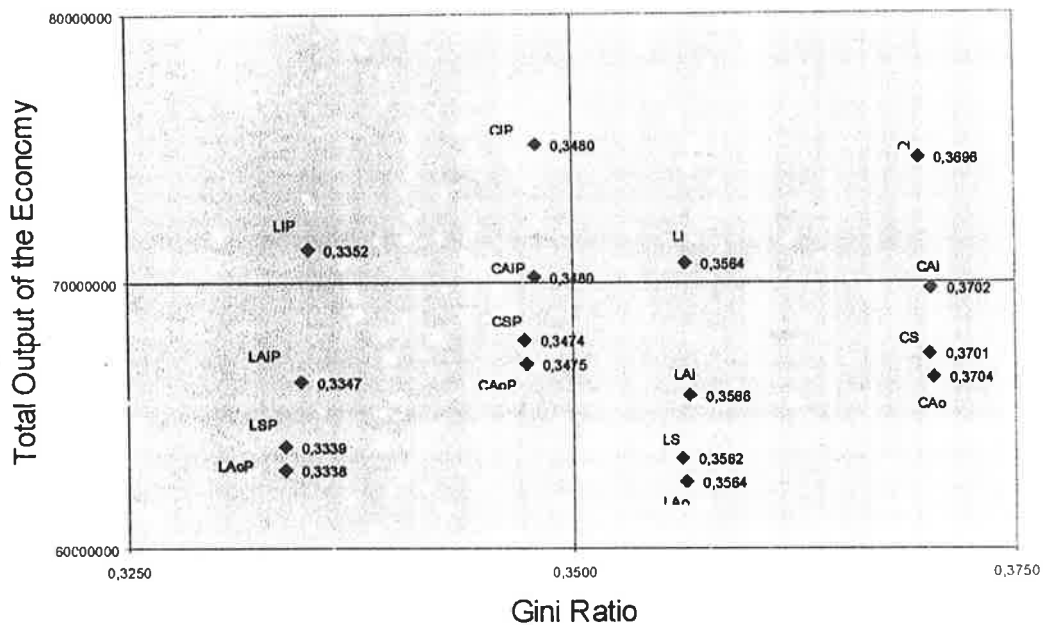
The top left corner of the graph is the area for strategies that yield high total output of the economy with low Gini ratios. The top right corner is for the strategies that generate high total output of economy and high Gini ratios. At the bottom left corner, the strategies that have low total output of economy and low Gini ratios are placed, and the bottom right corner is the place for strategies that yield low total output of economy and high Gini ratios.

Ideally, to achieve the best improvements in income equality and growth we need to choose a strategy that occupies the very left and very top spot of the graph. However based on existing economic structure of South Kalimantan as represented in the SAM model, such a strategy does not

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exist. The LAoP strategy resides in the leftmost area, but it is not the top one, whereas CIP is in the top but not in the leftmost area.

Agroindustrial development can better help to improve income equality. However, at present in absolute value, it shares a limited amount of all development aspects, such as output, value-added, and trade. Therefore, agroindustry has little impact on economic development, compared to other sectors that are dominant in the economy, including industry and agriculture. This is the constraint of agroindustrial development that needs to be addressed carefully.

Agroindustry's value-added share is the highest proportion in its output, highlighting the ability of agroindustry in value-added generation. If its output could be increased to the same level as industry's output, agroindustry would generate more value-added than industry. The multiplier analysis further strengthens this argument, revealing that agroindustry has the highest value-added multiplier as well. This means that not only does agroindustry have potential for value-added formation in the existing economic structure, but also in the longer-term, when the economic structure changes as the effect of exogenous changes. For income distribution, agroindustry helps to improve equality primarily through its indirect multiplier effect on corporations, which in turn produces higher income multipliers for low-income households.

This potential would need to be exploited. One possible way to make use of the potential is to increase agroindustry's dominance in the economy, more specifically to increase its output. Reducing cost for agroindustrial products is another way that could be considered. This includes government efforts in lowering licensing fees, providing better roads and ports, and easy access for marketing information.

Along with the fact that improving agroindustry's output is one constraint in the agroindustrial development in the South Kalimantan Province, another constraint is acquiring additional funds for regional development. To trigger the increase in agroindustry's output, some exogenous injections are needed and exogenous injections can take several forms. It could be in the form of expanding consumption of agroindustrial products, extra investments in the agroindustrial sectors, enlarging trade markets for agroindustrial products or a direct subsidy to agroindustry.

The new arrangement of general allocation of funds between the central government and the regions could be one of the main sources for additional funds, but only this source is not adequate to support the development process. Because presumably the most lucrative resource rent royalties (oil, gas) remain 70-85% in central government hand. Other sources need to be considered. Loan and grant, either from the central government in Jakarta or from international community are other

alternatives for fund sources. Foreign Direct Investment (FDI) is also one alternative that could be considered.

Agroindustry also needs more market access to sell the extra products. This is another constraint to developing agroindustries in South Kalimantan. From the 141,107 million rupiah of total output in the agroindustrial sector, some 4.0 percent is the value of investment (5,695 million rupiahs), and the rest is the value of agroindustrial products that are consumed, including intermediate input in production sector activities, consumption (either government and households), and export (Table 8.7).

Table 8.14   Allocation of Agroindustry Products

Allocation	Million Rupiahs	Percentage
Intermediate Input	21,251	15.06
Households Consumption	24,181	17.14
Government consumption	514	0.36
Export	89,466	63.40
Investment	5,695	4.04
Total Output	141,107	100.00

From this allocation of agroindustrial output, increasing agroindustry's market share in intermediate input is difficult, as agroindustry forward linkages are low. Low forward linkages mean that only a limited amount of agroindustrial products are used as intermediate input in production activities. The increase in consumption of agroindustry's products is a more-probable way to expand market segment. However, for this to happen household income needs improvement. If income growth among

households is broadly based, this will affect consumption linkages. These consumption linkages can create a mass-market for products from any sectors in the economy (Adelman 1984, Mellor 1995).

Improvement in export is a critical point in order to expand the market for agroindustry's product. As seen in Table 8.7., export share is the highest in the allocation of agroindustry's products, and the value of 63.40 percent is a significant proportion. This means that agroindustry already relies on the export market for its products. Therefore, if there is to be a significant increase in its output, some significant efforts are also needed to ensure that its export can be proportionally increased as well.

8.6   The Supporting Roles of Government

To address the constraints as described above, government policy, particularly local government, plays important roles in four different areas: promotion of regional potentials, formation of cooperation and partnerships, development of government/ public enterprises, and provision of extension service.

One important consideration for direct foreign investment coming into a particular region or country is that it could produce the same products at a lower cost, commonly known as comparative advantage. The comparative advantage could be in the form of plentiful and cheap production

resources (such as low labour wage rates or low prices of intermediate input), and could be in the form of less transaction costs (such as cost for transportation, cost for intermediary services, cost for security or safety, and the degree of difficulty in bureaucracy).

The comparative advantages need to be made known by the community targets that are expected to invest their foreign investments in the region. For this purpose, the role of promotion is very important. The government needs to take the responsibility for this. The government in collaboration with private firm can develop many types of promotion activities to promote the comparative advantages of the regions.

The government also needs to initiate and facilitate cooperation among participants that have an interest in agroindustrial development, be they individual, group, private or local government in Indonesia. It is also important for the government to investigate and to develop the possibility to have partnerships internationally. Rules and regulations need to be formulated clearly to ensure justice and fairness, so that the other party will not be fearful in investing their capital in the South Kalimantan Province for agroindustrial development.

To trigger expansion in agroindustry, the local government could initiate business in agroindustry by developing its own corporations. The government needs to provide a good example of how the success can

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also be developed in agroindustrial business. This can have many other advantages if the choice of type, location and scale of the business is appropriately decided. For instance, the government can initiate to build an agroindustrial enterprise in banana processing in the area of the South Kalimantan Province where banana products are in surplus, and farmers have difficulty in marketing their products (as like in district of Tapin). This will help farmers to generate value-added, provide some levels of employment, and promote rural development in general, beside its main purpose to trigger business in agroindustry.

Finally, the government needs to provide adequate extension services to boost agroindustrial development in the South Kalimantan Province. This service should be ready with appropriate technology to support agroindustry. To strengthen the service, the supports from research and development agencies are required. The agencies could absorb and formulate various problems faced by agroindustries in certain regions, then formulate some alternative prescriptions that are suitable as solutions to the problem. It could also introduce some new adaptable technology for the region. The extension service functions as the mediator. It connects community in the agroindustrial business in the South Kalimantan Province with the source of technology, either from research and development agencies or from any other sources.

8.7 Conclusion

The effects of the development process on income equality and economic growth will be shaped by the choice of strategy applied in the development. Some different scenarios have been formulated in order to investigate how different policy combinations affect equality and growth in the South Kalimantan Province. The scenarios are then run under the model of the SAM based mixed multiplier, which is derived from the 1999 SAM of South Kalimantan Province.

To measure the changes in the economy some indicators have been utilized. Regional development and economic growth improvement in the region is detected using gross regional product (GRP), total sectoral product (TSP), total income (TI), and total output of the economy (TOE). Meanwhile, the measure utilized to indicate income equality improvement is the Gini ratio (GR).

As general results, the simulations reveal that mostly the strategies used for simulations could help to improve income equality while still enhancing economic growth. The results confirm that for the purpose of enhancing growth with equity, the strategies focusing more on labour rank higher compared to the strategies that focus more on capital. The results also confirm that additional injections directly targeted to low-income households could significantly reduce the Gini ratio.

The CIP strategy that directs exogenous injections on capital, industry and low-income households seems to be more favourable if the purpose of development is to increase growth and to accelerate economic development in the region, but less effective for equality improvement. The simulations results expose that CIP has the highest values for GRP, TI, and TOE.

If the increase in income of low income households is the objective, the LIP strategy is the best choice. This strategy, which directs exogenous injections on labour, industry and low income households, causes the highest income improvement for the low income households.

If the purpose of development mainly is to increase productivity, output, and employment, the LIP strategy is the most suitable one to apply. It has the highest value for TSP. This strategy directs the exogenous injections on to labour, industry and low-income households.

The strategy that makes the best use of agroindustry to balance growth and equality is the LAoP strategy. This strategy focuses the exogenous injections on to labour, agroindustry, and low-income households. The simulation results reveal that the LAoP has the lowest value for the Gini ratio. It reduces GR by −8.21 percent from the initial value of the benchmark. Although it is not the same degree as the CIP strategy, the LAoP has also increased the TOE by 3.93 percent. This indicates that this

strategy besides its high ability to reduce the income gap, is still maintaining the phase of economic growth.

Apart from the 16 scenarios discussed above, the model can also be elaborated more with using other types of scenarios, which have important information and policy implications, such as the effects of injections to corporation, in combination with injections to different sectors and different types of households. This will help to explain how injection on corporation affects income flows to different levels of households in the economy.

In addition, the injection to low income households can be detailed further by imposing injections separately to each member of low income households (landless farmer, small landowner farmer and low income non farmer). This separation can explain further which one of the injections on these three households will contribute more on income equality improvement and growth promotion in the economy.

There are three major constraints in agroindustrial development in the South Kalimantan Province: the small output of agroindustry in the economy, lack of additional funds for development and a limited market for agroindustry's products. To help address these constraints, the roles of the South Kalimantan Province government are crucial, particularly in four aspects: promotion of regional potentials, formation of cooperation and

partnerships, development of government/public enterprises, and provision of extension service.

9 Summary

Indonesia, as one of the *East Asian miracle economies*, has achieved many remarkable and impressive accomplishments in economic development. Besides those achievements in economic growth, during the three decades prior to 1997, agricultural development has also been impressive. However, the income gap has not been reduced. The backwash effects are much more dominant than the spread effects. Many resources including human resources are pulled to certain regions in which the economy grows faster. This makes income generation in some regions greater than the other areas. Consequently, these regions economically grow much faster than the other regions of Indonesia and disparity problems among regions as well as among people are inevitable.

These disparity problems are worsened by the government's centralised policy approach. A centralised policy strategy distorts economic growth and concentrates development in some particular regions. Therefore, development in Indonesia needs to consider income equality adequately.

Promoting agriculture in development and utilising its comparative advantages can be one relevant alternative for the purpose of income redistribution, as it has several important roles in economic development. Agriculture can function as economic ballast while a region is experiencing a hard time such as an economic crisis. Agricultural improvement has

become a binding constraint for economic growth in Indonesia after the 1997 crisis, because the crisis has delayed recovery in the industry and service sectors. Moreover, some emerging issues regarding agricultural trade, as part of WTO agreement, indicate the importance of agricultural development as well. In addition, agriculture aids the process of a smooth economic transformation. It fosters rural development and reduces regional disparity by creating income for farmers and generating multiplier effects in rural areas. Agricultural development can also ensure food security.

Particularly in the structural transformation process, agriculture's roles are crucial. Farmers as the majority of Indonesians could benefit from development if agricultural roles in the transformation process apply appropriately. In addition, because farmers are mostly poor, the improvement of farmer income will help Indonesia to increase income equality while still maintaining economic growth.

The formulation of appropriate policies is the basis for the successful contribution of agricultural to development. Indonesia, though successful in certain areas of agricultural development, such as reducing poverty and hunger, has not been successful in showing any significant improvement in the income gap, and many vulnerable groups slipped back into poverty during the 1997 crisis. As a result of this and in conjunction with the changing local and global economic climate, Indonesia has decided to re-

order and change its economic paradigm. Welfare instead of production is a primary focus.

The new paradigm aims to induce technical and institutional changes, to make agriculture an efficient and leading sector of national economy, as well as to make available more productive employment in rural areas. It will have linkages with infrastructure, processing, marketing, and distribution. One other important purpose for agricultural development is to not only increase production, but to increase farmer welfare. This new paradigm is aimed at supporting agribusiness, a form of farming with a business character, with agroindustry as one of its sub-systems.

There have been previous works and studies that exhibit the important roles of agroindustry. It has a wide effect on the welfare of the family and rural community, affecting farm aspects such as number and size, control, ownership, and the marketing of input and output. Agroindustry can serve as a bridge for economic transformation, generate employment in rural areas, prevent rapid urbanisation, improve income for the poor, generate positive externalities for society in general, help small-scale farmers to survive, and enhance growth with equity.

This research is designed to verify those previous findings regarding the roles of agroindustry with empirical data. For this purpose, a model was used that is wide enough to represent the whole economic system of an

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observed region. This is needed to understand how agroindustry interacts with other sectors in the economy. The model also needs to enable detailed investigation on income and expenditure flows of any particular account, including agroindustry. With these capabilities, an investigation on how agroindustry's roles affect regional economy and income equality in the economy can be carried out.

A social accounting matrix (SAM) fulfils this requirement. This model has the capacity of combining and organizing a wide range of data in a complete, consistent and compact framework. The SAM model also has the ability to analyse transaction flows between various sectors in the economy while it is also able to examine the flow of income and its distribution within various household categories.

The South Kalimantan Province has been chosen as the focus of study in this research. To construct a SAM for the province, the entire economic activities have been grouped into four major accounts: factors, sectors, institutions, and exogenous accounts. By considering the research purposes as well as data availability, 1999 has been decided to be the base year of the SAM of the province. In total the 1999 SAM of the South Kalimantan Province has 19 accounts, two accounts are included in factors, four accounts are included in sectors, eight accounts are grouped into institutions and five accounts are grouped into exogenous accounts. This SAM uses million rupiahs as its transaction units.

The effects of the development process on income equality and economic growth will be shaped by the choice of strategy applied in the development. Some different scenarios have been formulated in order to investigate how different policy combinations affect the equality and growth of South Kalimantan's economy. The scenarios are then tested under the model of the SAM based mixed multiplier, which is derived from the 1999 SAM of the South Kalimantan Province.

Regional development and economic growth improvement in the region are detected using gross regional product (GRP), total sectoral product (TSP), total income (TI), total income received by low income households (TI-Poor) and total output of the economy (TOE). The measure utilized to indicate income equality improvement is the Gini Ratio (GR).

The data on the 1999 SAM of South Kalimantan Province reveal that in South Kalimantan, the total income received by factors, which is also known as Gross Regional Product (GRP) reaches 15,058,324 millions rupiah. From this amount, gross domestic regional product (GDRP) is counted as 98.14 percent of the total factor income, and 1.86 percent is factor income received from outer regions. This indicates that domestic production activities are dominant in South Kalimantan's economy.

Among domestic production activities, the most dominant sector is industry, which shares more than a half of GRP of South Kalimantan. Yet, agroindustry does not have much involvement in economic activities, and has the smallest share in GRP. However, despite its small share, agroindustry has a potential to generate factor income for the economy as it has a high value-added share in output and value-added multiplier. Agroindustry is also the most productive sector in the economy, in the long and short run.

AgroIndustry's area of strength for linkages is in value-added linkages. This indicates that the full circular flow effects of an exogenous injection in agroindustry in South Kalimantan's economy result in generating more value added for the economy. Agroindustry's forward linkages are lower than its backward linkages. This means that agroindustry could help more in demand generation for other sectors in the economy, but less helpful in stimulating other sectors to grow by the provision of their inputs.

As a proportion of its own output, agroindustry has high values for net export and for export share, but has low value for import share. In addition, agroindustry also has a high value for the export import ratio. These facts imply that agroindustry has potential as a tradable sector if it has adequate and appropriate support to develop. It induces foreign exchange generation, and has a good structure in export-import, compared to industry and any of the other sectors in the economy.

In South Kalimantan, per-capita income ranges between 497 to 21,581 thousand rupiahs. Households of various levels receive 38.8 percent of the total factor income or GRP, corporations earn 26.3 percent, the government receives 27.3 percent, and only a very small amount (7.49 percent) leaks to the other regions of the South Kalimantan Province. The data also indicate that South Kalimantan's economy is dependent on external funds, as its net factor income receipt from outer regions is negative.

Agroindustry can help poor households improve their income. Although an exogenous injection on agroindustry does not produce the highest income multiplier for the poor, it generates a significantly high-income multiplier for corporation. The model shows that this will derive additional income for households, which is mostly absorbed by the poor households.

The study results show that strategies focusing more on labour improve income equality the most, ranking higher than strategies focusing on capital. The results also confirm that additional injections directly targeted to poor households could significantly reduce the Gini Ratio.

This study found that the 'Capital, industry, and poor household focus' (CIP) strategy that direct exogenous injections on capital, industry and poor households seems to be more favourable if the purpose of

development is to increase growth and to accelerate economic development in the region, but less effective for equality improvement. The simulation results have CIP with the highest values for GRP, TI, TI-Poor, and TOE.

If increasing income of lowest income households is the objective, the LIP strategy is the best option. This strategy, which directs exogenous injections on labour, industry and low income households, causes the highest income improvement for the low income households.

If the purpose of development strategy is to increase productivity, output, and employment, the LIP strategy is the most suitable one to apply. It has the highest value for TSP. This strategy directs the exogenous injections on to labour, industry and low-income households.

The strategy that makes the best use of agroindustry to balance growth and equality is the LAoP strategy. This strategy focuses the exogenous injections on to labour, agroindustry, and low-income households. The simulation results reveal that the LAoP has the lowest value for the Gini Ratio. It reduces GR by –8.21 percent from the initial value of the benchmark. Although it is not the same degree as the CIP strategy, the LAoP has also increased the TOE by 3.93 percent. This indicates that this strategy besides its high ability to reduce the income gap, is still maintaining the phase of economic growth.

South Kalimantan faces three major constraints in the development of agroindustry: the small output of agroindustry in the economy, a lack of additional funds for development and a limited market for agroindustry's products. To help address these constraints, the roles of South Kalimantan Province's government are crucial, particularly in four aspects: the promotion of regional potentials, the formation of cooperation and partnerships, the development government/public enterprises, and the provision of extension services.

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Appendix A. Marginal Expenditure Propensity Matrix of the SAM 1999 of South Kalimantan Province (19X19 Accounts)

Accounts	MEP1	MEP2	MEP3	MEP4	MEP5	MEP6	MEP7	MEP8	MEP9	MEP10	MEP11	MEP12	MEP13	MEP14	MEP15	MEP16	MEP17	MEP18	MEP19
1	0.000	0.000	0.091	0.175	0.064	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.116	0.000	0.000	0.000	0.000	0.010
2	0.000	0.000	0.373	0.557	0.727	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.580	0.000	0.000	0.000	0.000	0.011
3	0.000	0.000	0.211	0.115	0.091	0.009	0.012	0.026	0.009	0.020	-0.019	-0.104	0.000	0.151	0.046	0.000	0.148	0.712	0.498
4	0.000	0.000	0.019	0.010	0.012	0.013	0.003	0.000	0.002	0.000	0.005	0.009	0.000	0.013	0.032	0.000	0.000	0.062	0.047
5	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.001	0.007
6	0.054	0.005	0.000	0.000	0.000	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.003	0.000	0.012	0.000	0.000	0.000	0.009
7	0.077	0.016	0.000	0.000	0.000	0.003	0.002	0.002	0.002	0.001	0.002	0.001	0.004	0.000	0.061	0.000	0.000	0.000	0.018
8	0.165	0.022	0.000	0.000	0.000	0.006	0.003	0.004	0.004	0.003	0.004	0.003	0.009	0.000	0.130	0.000	0.000	0.000	0.023
9	0.274	0.050	0.000	0.000	0.000	0.009	0.005	0.006	0.007	0.005	0.006	0.005	0.014	0.000	0.151	0.000	0.000	0.000	0.033
10	0.221	0.035	0.000	0.000	0.000	0.005	0.003	0.004	0.004	0.003	0.003	0.003	0.008	0.000	0.116	0.000	0.000	0.000	0.037
11	0.190	0.024	0.000	0.000	0.000	0.007	0.004	0.005	0.005	0.003	0.004	0.003	0.010	0.000	0.150	0.000	0.000	0.000	0.052
12	0.018	0.088	0.000	0.000	0.000	0.004	0.002	0.003	0.003	0.002	0.003	0.002	0.006	0.000	0.092	0.000	0.000	0.000	0.009
13	0.000	0.327	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.066
14	0.000	0.000	0.061	0.033	0.026	0.057	-0.031	0.008	-0.036	-0.015	-0.022	-0.081	0.000	0.044	0.001	0.000	0.000	0.154	0.129
15	0.000	0.340	0.000	0.000	0.000	0.021	0.012	0.014	0.015	0.011	0.013	0.011	0.204	0.000	0.029	1.000	0.852	0.000	0.012
16	0.000	0.000	0.017	0.022	0.043	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.000	0.000
17	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.038
18	0.000	0.000	0.000	0.000	0.000	0.000	0.048	0.056	0.059	0.250	0.165	0.146	0.539	0.000	0.038	0.000	0.000	0.000	0.000
19	0.000	0.093	0.228	0.087	0.035	0.864	0.935	0.870	0.925	0.716	0.837	0.999	0.200	0.089	0.129	0.000	0.000	0.070	0.000

Appendix B. Mixed Multiplier Matrix of the SAM 1999 of South Kalimantan Province

Accounts	MM1	MM2	MM3	MM4	MM5	MM6	MM7	MM8	MM9	MM10	MM11	MM12	MM13	MM14
1	1.001	-0.001	0.120	0.191	0.077	0.003	0.002	0.003	0.002	0.002	-0.001	-0.011	0.000	0.136
2	0.005	0.997	0.487	0.618	0.778	0.012	0.008	0.013	0.006	0.010	-0.006	-0.044	0.000	0.661
3	0.009	-0.010	1.268	0.144	0.111	0.013	0.015	0.033	0.012	0.025	-0.024	-0.130	0.000	0.169
4	0.003	0.001	0.025	1.014	0.016	0.013	0.004	0.001	0.002	0.001	0.005	0.007	0.000	0.018
5	0.000	0.000	0.001	0.001	1.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001
6	0.055	0.006	0.010	0.014	0.009	1.002	0.001	0.002	0.002	0.001	0.001	0.000	0.003	0.012
7	0.079	0.018	0.018	0.026	0.020	0.003	1.002	0.002	0.002	0.002	0.002	0.000	0.004	0.023
8	0.169	0.025	0.033	0.048	0.033	0.007	0.004	1.005	0.005	0.004	0.003	0.000	0.009	0.040
9	0.281	0.055	0.061	0.088	0.065	0.011	0.007	0.008	1.008	0.006	0.005	-0.001	0.014	0.075
10	0.225	0.038	0.046	0.067	0.047	0.007	0.004	0.005	0.004	1.004	0.003	-0.001	0.008	0.056
11	0.195	0.028	0.037	0.055	0.037	0.008	0.005	0.006	0.005	0.004	1.004	0.000	0.010	0.045
12	0.021	0.090	0.047	0.060	0.072	0.005	0.003	0.004	0.004	0.003	0.002	0.998	0.006	0.063
13	0.002	0.327	0.160	0.203	0.255	0.004	0.003	0.004	0.002	0.003	-0.002	-0.015	1.003	0.217
14	0.017	0.011	-0.071	-0.033	-0.024	-0.057	0.030	-0.009	0.036	0.014	0.024	0.088	0.001	0.953

Appendix C. Mixed Multiplier Matrix of the Transformed SAM 1999 of South Kalimantan Province

Accounts	TMM1	TMM2	TMM3	TMM4	TMM5	TMM6	TMM7	TMM8	TMM9	TMM10	TMM11	TMM12	TMM13	TMM14
1	1.001	0.001	0.001	0.005	0.006	0.365	0.212	0.252	0.279	0.276	0.221	0.033	0.001	-0.007
2	-0.003	0.997	-0.006	0.007	0.008	0.170	0.197	0.155	0.227	0.194	0.130	0.575	0.820	-0.020
3	0.755	0.744	1.268	0.237	0.157	0.402	0.307	0.306	0.379	0.354	0.264	0.453	0.611	0.196
4	0.125	0.098	0.015	1.014	0.010	0.062	0.046	0.047	0.057	0.054	0.040	0.061	0.081	0.009
5	0.004	0.009	0.001	0.001	1.001	0.003	0.003	0.002	0.003	0.003	0.002	0.005	0.007	0.001
6	0.001	0.000	0.000	0.003	0.000	1.002	0.001	0.002	0.002	0.001	0.001	0.001	0.000	0.004
7	0.001	0.001	0.001	0.002	0.000	0.003	1.002	0.002	0.002	0.002	0.002	0.002	0.001	-0.005
8	0.002	0.002	0.004	0.001	0.007	0.007	0.004	1.005	0.005	0.004	0.004	0.004	0.002	0.003
9	0.002	0.001	0.002	0.004	0.002	0.010	0.006	0.007	1.008	0.006	0.006	0.006	0.001	-0.016
10	0.002	0.002	0.003	0.001	0.005	0.007	0.004	0.005	0.005	1.004	0.004	0.004	0.002	-0.005
11	-0.001	-0.001	-0.003	0.007	0.008	0.006	0.004	0.004	0.004	0.003	1.004	0.003	-0.001	-0.009
12	-0.007	-0.007	-0.013	0.007	0.006	0.001	0.000	0.000	0.000	-0.001	0.000	0.998	-0.006	-0.025
13	0.000	0.000	0.000	0.000	0.001	0.032	0.019	0.022	0.023	0.016	0.019	0.016	1.003	-0.001
14	-0.311	-0.367	-0.069	-0.064	-0.043	-0.176	-0.139	-0.136	-0.170	-0.158	-0.117	-0.222	-0.302	0.953

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